

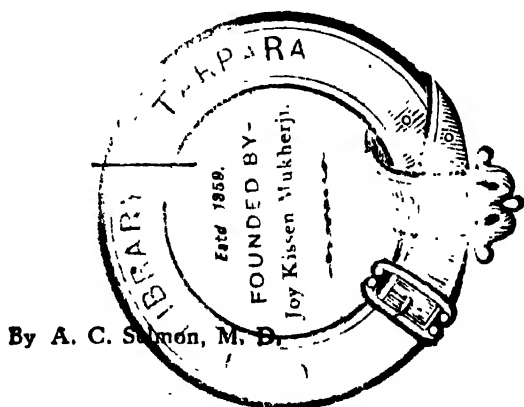
Health and Longevity

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HEALTH and LONGEVITY

A treatise in popular language on the cause, prevention
and treatment of the commonest diseases

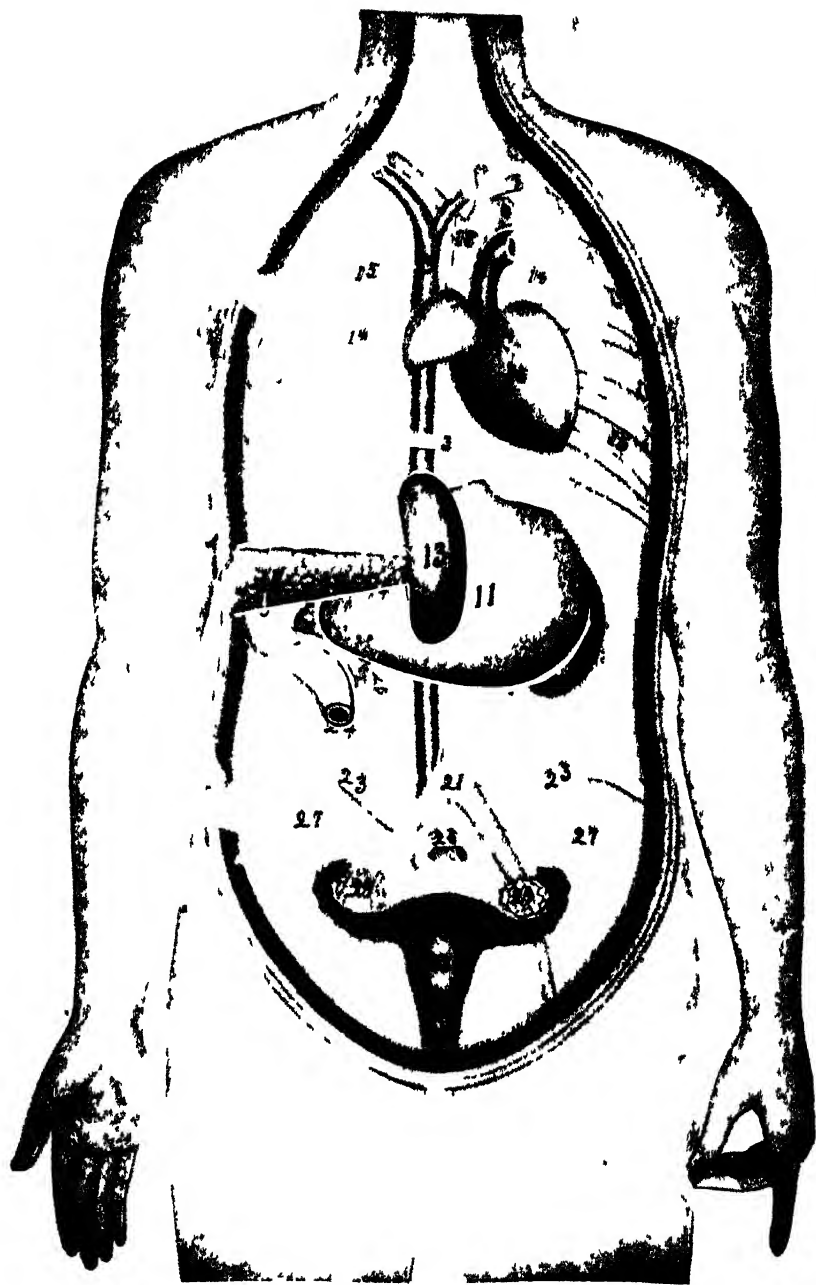


By A. C. Salmon, M. D.

Oriental Watchman Publishing House,
Salisbury Park, Poona, India

Explanation of Manikin

1. The trachea or Windpipe,
2. The Lungs
3. The Diaphragm
4. The Liver
5. The Gall Bladder is located back of Colon at this point
6. The Small Intestines
7. The Large Intestine or Colon
8. The Cecum, to which is attached the appendix
9. The Sigmoid Colon
10. The Rectum
11. The Stomach. (The figure 6" to left of stomach represents the Duodenum)
12. The Pancreas
13. The Spleen
14. The Ribs
15. The Intercostal Spaces. Spaces between the ribs
16. The Heart
17. The Pulmonary Artery. Marked blue because it carries impure blood
18. The Aorta
19. The superior Vena Cava
20. The inferior Vena Cava
21. The Abdominal Aorta
22. The Kidneys. With renal artery in red and renal vein in blue attached
23. The Pelvic Bones
24. The Peritoneum
25. The Ureters
26. Cross section of the Rectum
27. Pelvic Peritoneum
28. The Uterus
29. The Ovaries
30. The Fallopian Tubes or Oviducis
31. The Cervix Uteri



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Publisher's Preface

The first edition of *Health and Longevity* was sold out within a year of its issue from the press. To the second edition, which was immediately placed on the market, considerable new matter was added, especially to the chapter on the Care of Infants and Small Children; also the chapters on Patent Medicines, Typhus Fever and Leprosy. Our thanks are due H. C. Menkel, M.D., and A. E. Clark, M.D., for their contributions, made by special request, as found in the Appendix concerning the cause and treatment of certain diseases. The third edition was sold out in ten months. The placing of the fourth and fifth edition of *Health and Longevity* on the market was increasing evidence that it was meeting a long-felt need, and that the public was becoming more and more aroused to the study of those laws and principles that govern the human body, a due recognition of which constitutes the surest and speediest guarantee to abounding health and long life.

The publishers place the sixth edition of 6,000 copies at the disposal of the public, believing that it will continue to be in demand in a tropical country like India where healthful living conditions, and mediums of proper instruction concerning the laws of life and health are at a minimum. Whatever injures the body not only lessens physical energy, but also weakens the mental and moral powers. "The body is the only medium through which the mind and the soul are developed for the upbuilding of character. Hence it is that the adversary of souls directs his temptations to the enfeebling and the degrading of the physical powers. His success here means the surrender to evil of the whole being." That this book may help the reader to more readily comprehend and more efficiently discharge his obligations to himself, to his family, to the world and to his Maker, is the wish of

THE PUBLISHERS.

Author's Pretace

Since a large percentage of the sickness and suffering that prevails among the races of mankind is preventable, there is great need of a book that discusses the cause, prevention, and treatment of the commonest diseases, in language easily understood by the ordinary reader.

In the first thirteen chapters of the book are given some of the most important facts concerning the structure and functions of the various parts of the body, and directions concerning what must be done by the individual to preserve the health of each organ. The greater portion of the book is given to a description of the commonest diseases. The means of preventing these diseases is emphasized. Such treatments are described as can be used in the ordinary home.

The book is not intended to take the place of a physician. By imparting information concerning the symptoms of disease, and advising the patient, when necessary, to seek the help that can be given only by a skilled physician, the book will lead the reader to place a high value on the work of physicians, dispensaries, and hospitals.

The author feels that the book will prove of great value in every home; for by making use of the information the book gives, sickness and suffering may be lessened, and by knowing how to do the right thing at the right time, a life may often be saved.

The medicines recommended are those that can be secured in any ordinary chemist's shop. In order to comply with the law concerning the sale of poison, it will be necessary to secure a physician's prescription before some of the medicines can be bought.

In the back of the book is given a list of the medicines and the doses.

In some places in the book the prescriptions are referred to by number. The list of these prescriptions will be found in the back of the book.

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*“Without a knowledge of health principles
no one is fitted for life’s responsibilities.”*

CHAPTER 1

The Value of Health

Life is man's most valuable possession, and next in order of value is health. Without health, life is deprived not only of much, if not all, of its usefulness, but also of its joys and pleasures. For if the body is not in good health, one cannot go about at will ; he cannot do what he would enjoy doing ; he cannot eat the food he would enjoy eating.

A sick man not only suffers pain and discomfort himself, and is unable to supply his own needs, but he requires one or more persons to stop doing their ordinary work and spend their time in caring for him. In this way he becomes a burden to others because they must nurse him and supply his food and clothing.

In addition to all this the sick person is often a menace to everyone in his immediate neighbourhood, because most diseases are easily carried from one person to another. Have we not all seen instances where one member of a family became sick, and in a very short time other members of the family contracted the disease from him and were stricken down? Very often the disease spreads abroad from that family to other families in the community, resulting in large financial loss through the afflicted persons not being able to work or conduct their business, and in that greatest of all losses, the loss of human life.

Furthermore, when health is impaired it cannot be restored in a day. It is a grievous error to look upon disease as a matter of small import, because it is thought a cure can be effected by taking a few doses of some medicine. Most diseases require many days and the expenditure of much effort to effect a cure. Looked at from this viewpoint it is evident that the community as a whole, as well as every individual in the community, should place a very high valuation on health.

It is the first duty of everyone to take care of his own body and keep it in health. This is a duty he owes to himself, to his family, to his neighbours and to his country; and, above all, it is a duty that he owes to his Creator. It is a mistake to think that sickness is inflicted by the gods, or by evil spirits, or by climatic conditions, and so is unavoidable. Neither is life and death decided by fate.

Sickness is brought on by a violation of the laws of health. By observing the laws of health and caring well for the body, it is possible to avoid at least eight-tenths of the sickness with which the majority of people are afflicted. Observance of the laws of health brings that blessing which all men desire, namely, long life. Disregard of the laws of health brings upon one those calamities which all men fear, namely, sickness and death.

Every intelligent person now knows that life can be greatly lengthened by following the laws of health and applying the principles of hygiene and sanitation. Four hundred years ago the people of Europe paid little attention to matters of hygiene and sanitation and, as a result the average length of life there was only twenty years. But at present the average length of life in most European countries is over forty years. This great increase in the average length of life has been effected by the individual and the government putting into practice hygienic and sanitary methods. In many parts of Asia, some people still pay but little heed to hygiene and sanitation, and, as a result, the average length of life now, in such countries as India and China, is not above twenty-five years. By comparing the high average length of life in Europe to-day, is it not evident that those who love life and desire to prolong their days should give heed to hygiene and sanitation, and to everything else that concerns the prevention of disease and the extension of life?

As a rule, when people are in health they give little thought to the care of their bodies; but when they become weak and diseased, and death draws nigh, then they begin to study how to care for their bodies; but, alas, it is often too late. This is like waiting until after the thief has gone before locking the door. The time to begin caring for the

body is while one is yet young. Indeed it has been said that, in order to ensure the child's having a healthy body and a strong constitution, it is necessary to begin before the child is born. The father and mother must care well for their own health, because weak, sickly parents cannot beget strong healthy children.

It is probable that the majority of the readers of this book have already reached maturity. Perhaps many already have weak bodies, and some may be afflicted with disease. In that case it is all the more important that readers of this book study the laws of health, and learn not only how to care for the body when it is in health, but also how to restore it to health if it becomes diseased. The aim of this book is to give the reader information that will enable him to avoid disease and to preserve his own health and that of his family. It gives such instruction in the treatment of common diseases as can be carried out in the home by one who is not a physician. Needless to say, in every case of serious illness the help of a competent physician should be secured, if possible; for no book can take the place of a skilled physician.

The Causes of Disease

Many people erroneously think that disease is an unavoidable calamity. Physicians and scientists have now demonstrated that diseases are due to specific causes. Some diseases are due to the body not being supplied with the proper kinds of nourishment; beriberi is such a disease. There are diseases that are caused by poisons entering the body; such a disease is phosphorous poisoning, which is often contracted by those who work in match-making factories. Disease may be brought on by wrong habits; for example, wrong habits of eating may cause dyspepsia. The above-mentioned causes do not account for more than one-tenth of the sickness in the world; the other nine-tenths are caused by disease-producing germs,

Disease-Producing Micro-Organisms

Disease-producing germs are the greatest enemies of mankind. Every day they kill tens of thousands of people. Disease germs are the cause of colds, tuberculosis, pneumonia,

diarrhoea, dysentery, typhoid fever, cholera, tetanus (lock-jaw), whooping-cough, malaria, leprosy, bubonic plague and a multitude of other diseases. From reading this list it will be seen that most of the deaths in the world are caused by disease germs.

Disease germs are two kinds. One kind belongs to the plant kingdom, and one kind to the animal kingdom. These disease germs are so very, very small that the eye cannot see them. Most of them are so small that when they are magnified one thousands times by a microscope, they appear only as large as a mustard seed.

Disease germs multiply very fast. Under favourable conditions, a single one of the germs that produce cholera or typhoid fever can in ten hours time, give rise to a million others. Since they are so small, and multiply so fast, they are widely distributed. They are found in the water of wells, rivers and ponds, in the dust of the street, and in the dust on the floors and walls of houses, and even in the foods we eat and liquids we drink. It may be said that in thickly populated places disease-producing germs are found everywhere. Since this is so, every one should learn how to keep these germs out of the body, and how to destroy them should they gain entrance into the body. This subjects will be discussed in other chapters of this book.



CHAPTER 2

The Three Main Divisions of the Body, and Six General Rules of Health

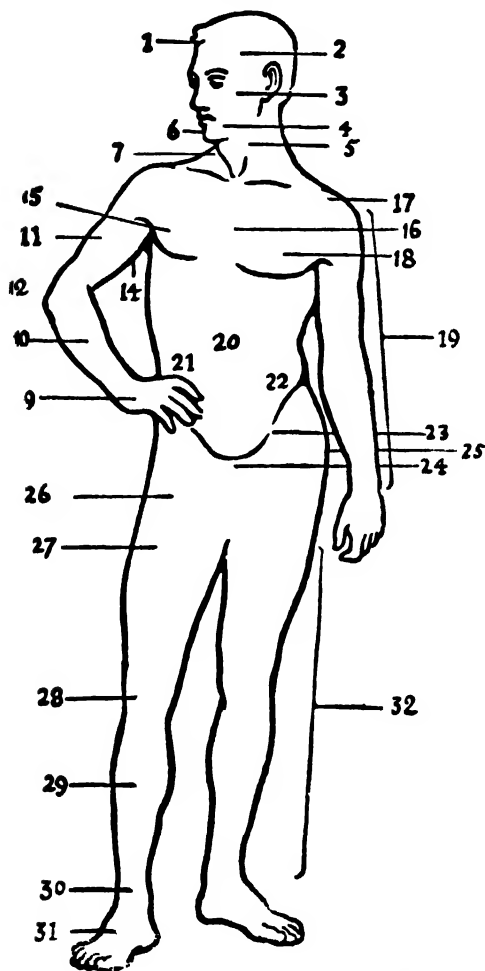
The body has three main divisions, namely, the head, the trunk, the upper and lower, limbs. In the trunk there is a large cavity wherein are almost all of the important organs. This cavity is divided into an upper and a lower portion by a thin wall called the diaphragm (see manikin, frontispiece.) The upper portion is called the chest. Within it are the heart and lungs and in the back part of it are the trachea and gullet or œsophagus. The cavity below the diaphragm is called the abdominal cavity. Within it are the liver, the stomach, the spleen, the pancreas, the small and the large intestines. The kidneys are situated just outside it, at the back.

Each member of the body has its own use, and is called an organ. Several organs may work together. For example, the mouth, teeth, gullet, stomach, small and large intestines and pancreas all work together in the digestion of the food; these are collectively called the digestive organs. The nose, pharynx, trachea and lungs work together in getting fresh air into the body, and getting rid of the carbon dioxide (see Chapter 6); and for this reason they are called the respiratory organs. The heart and all the large and small blood-vessels work together in causing the blood to circulate through the body; and so they are called the circulatory organs. The kidneys, skin, lungs, liver and large intestine all work together in getting the waste matters out of the body; for this reason they are called the excretory organs. The brain, the spinal cord and all the large and small nerves work together in directing and controlling all the other organs of the body; these comprise the nervous system. In addition to the above-mentioned organs there are the bones, which serve as the framework and give shape to the body, and the muscles which move all the parts of the body.

Six General Rules of Health

If all of the parts of the body are protected, and their needs supplied, one will have perfect health.

The care that is needed in keeping the body and all its parts in health, may be illustrated by the care required in keeping a locomotive and all its parts in good working order. In order for the locomotive to run well, and be able to pull a train of several heavy cars, it must be constantly supplied with coal and water; the parts that move must be frequently oiled; the ashes and cinders must be removed from the furnace; the dust and dirt must be frequently wiped off, so that the important parts of the locomotive shall not be injured. The engine driver must understand the importance of these things. He must understand the use of all the parts of the locomotive so that in case any part gets out of order, he will know what is the trouble. If an



1. Forehead 2. Temple 3. Cheek 4. Jaw 5. Neck 6. Chin 7. Trachea 8. Hand 9. Forearm
10. Upper arm also called "Arm" 11. Elbow 12. Arm 13. Right Breast 14. Left Breast 15. Chest
16. Shoulder 17. Left Breast 18. Arm 19. Abdomen 20. Liver 21. Spleen 22. Goin 23. Pelvis
24. Hip 25. Upper Leg or "Thigh" 26. Knee 27. Calf 28. Ankle 29. Foot 30. Leg

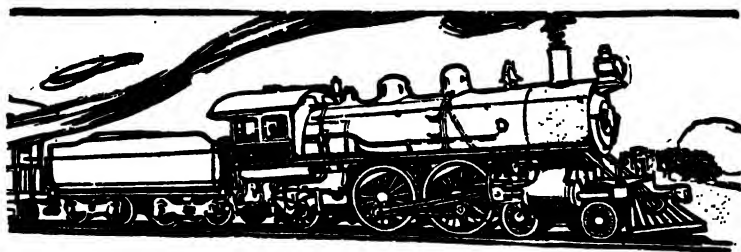
engine driver must know all this before he can manage a locomotive well and keep it in good condition, it is evident that every one should know about the parts of his own body and the needs of every part in order to keep it in health.

If an engine driver did not know how to care for the locomotive, he would soon disable it; and in like manner, the man who does not understand how to care for his own body will soon have a weak, diseased body. Every year there are thousands and tens of thousands of people who lose their lives because they do not know how to protect and care for their bodies.

Those things that are necessary in caring for the body, and keeping it in health, are summarised in the following six general rules:—

1. The body must have proper food and drink.
2. The body must have an abundance of sunlight and fresh air.
3. The body must constantly get rid of its waste matters.
4. The body must be protected, so that it will not be injured by cold or heat.
5. The body must daily have proper exercise and proper rest.
6. The body must be constantly protected against the entrance of poisons and disease-producing germs.

By observing these six rules, disease can be avoided and long life can be ensured; but failure to observe any one of them will sooner or later bring sickness.



CHAPTER 3

The Alimentary Canal and Digestion

In this chapter we will make further use of the comparison of the body to a locomotive. A locomotive is made almost entirely of two materials, iron and copper. It secures all its energy from two materials, coal and water. In case any part of the locomotive becomes worn out, it requires either copper or iron to repair it; and so iron and copper may be called the locomotive's repair materials. In order to supply it with energy, that it may move, coal and water are constantly needed; and so coal and water may be called the locomotive's heat-giving and strength-giving materials.

Our bodies are composed of many kinds of material. There is one kind of material in the bones, another kind in the skin, another kind in the nerves. Whether awake or asleep, some parts of the body are always moving and, like the parts of a machine that constantly moves, they are continually wearing out. Material is needed to repair this wear and waste. This repair material is found in the food we eat. The locomotive gets its energy from the coal and water, and in like manner our bodies get from the food we eat the energy that enables the heart to beat, and the arms and legs to move, and each organ to do its appointed work. No matter whether the weather be hot or cold, our bodies are always warm. This heat that keeps the body warm, also comes from the food we eat. From this we see that the food we eat serves two important purposes; *First*, it is like the fuel of the locomotive, for it supplies the body with heat and energy. *Second*, it is like the iron and copper used to repair the locomotive; for it supplies the material for the repair and growth of the body.

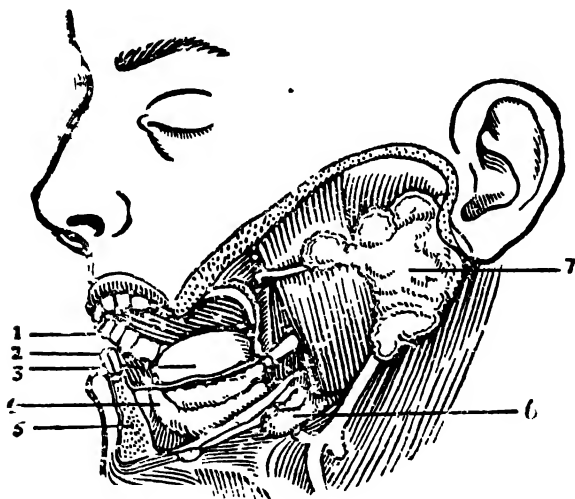
Food Must be Digested

We know that when a piece of skin is scraped off we cannot place a piece of food on the injured part, and thus repair

it. If an opening were cut into the arm, and food placed within it, the arm could not get any heat or strength from this food. Before it can supply building material or heat or energy, food must first be eaten and digested. Digestion is the series of changes through which the food passes that prepares it for the use of the body as heat and energy-producing material and as material for repair and growth.

The Alimentary Canal

The part of the body that has to do with digesting the food is called the alimentary canal. The alimentary canal is a long tube that reaches from the mouth to the lower end of the large intestine. The middle portion of it is coiled up. In an adult this tube is about thirty feet long. The names of the different sections of the alimentary canal are, the mouth, oesophagus, stomach, small intestine and large intestine.



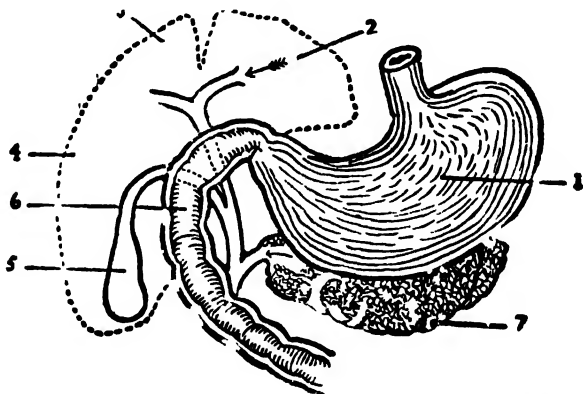
1. Upper Teeth 2 Lower Teeth 3 Tongue 5. Lower Jaw 4, 6 and 7 Salivary Glands

The food first enters the body through the mouth. In the mouth it should be chewed into very fine particles by the teeth. As it is chewed it is mixed with the saliva, a fluid which comes to the mouth from three pairs of glands called the salivary glands. The location of these glands is

shown in the accompanying illustration. The saliva helps in the work of digestion; therefore food should not be swallowed quickly, but time should be given, by thoroughly masticating the food, for it to be well mixed with this digestive juice before it leaves the mouth. When the food is swallowed, it passes down the œsophagus into the stomach.

The Stomach

The stomach is a pouch-like enlargement at the lower end of the œsophagus. A glance at the manikin (front piece) will show its shape and location. The stomach of an adult



Stomach 2 Hepatic Duct from Liver 3 and 4 Liver 5 Gall Bladder 6 Small Intestine 7 Pancreas

will hold only from one-and-a-half to two quarts. The inner lining of the stomach looks like the inside lining of the mouth. This inner lining produces a fluid, called the gastric juice. This gastric juice is acid, and like the saliva in the mouth, helps in digesting and preparing the food for the use of the body.

Could we see the inside lining of the stomach when it is secreting gastric juice it would look somewhat like the skin when perspiring; for the gastric juice appears to ooze out of the stomach lining just as the perspiration appears to ooze out of the skin.

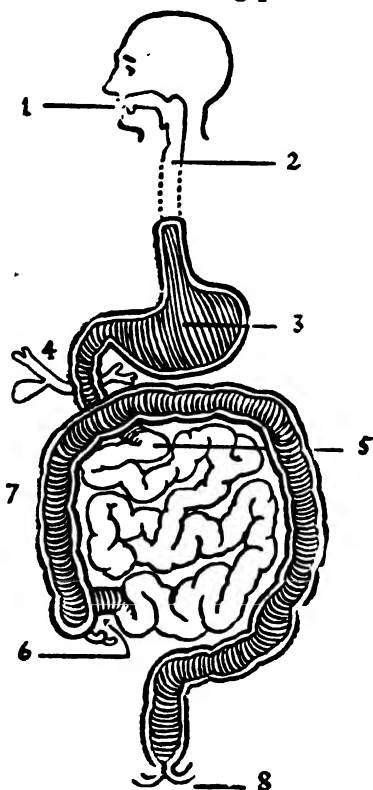
In order for the stomach to do its work well, the food it receives should have been well cooked and thoroughly masti-

cated. If the food is only partly cooked it can be only partly digested, and there will often be, after eating, a burning pain in the stomach, and the belching up of very sour fluid.

When any kind of wine or alcohol is drunk, the inside of the stomach is injured. Tea drinking and tobacco using also injure the stomach. Pepper, ginger, curry and *pan* injure the inside lining of the stomach. If pepper, ginger or curry are held in the mouth, they burn it, but we do not notice their burning very much because the mouth can become accustomed to hot things, just as the blacksmith with calloused hands can grasp very hot articles without feeling pain. And moreover, such hot things are not held in the mouth long. These hot spices burn the lining of the stomach much worse than they burn the mouth; and the stomach cannot get rid of them as quickly as the mouth does, but must be burned by them all the time the food remains in the stomach, whether it be one hour or several hours. These spices are of absolutely no use in the body. They do only harm, and for this reason they should never be eaten.

The Small Intestine

After the food has remained in the stomach from thirty minutes to several hours, depending on the kind of food eaten and on how well it was cooked and chewed, most of it passes on into the small intestine. The small intestine is a tube about twenty feet long coiled up in the abdominal cavity. (See accompanying illustration.)



1 Mouth 2 Oesophagus 3 Stomach 4 Gall Bladder and Bile Duct 5 Small Intestine 6 Valve Joining small and Large Intestines 7 Large intestine or Colon 8 Rectum.

A small tube that runs from the liver and gall bladder opens into the upper end of the small intestine. The bile, which is formed in the liver, flows through this tube into the small intestine. This bile helps in preparing the food for the use of the body. Another small tube that runs from the pancreas also opens into the upper end of the small intestine. The fluid formed in the pancreas flows through this tube into the small intestine and acts a very important part in digesting the food.

The Large Intestine

By the time the contents of the small intestine have reached its lower end, and are ready to pass into the large intestine, almost all of the food material that is useful to the body has already been absorbed into the blood. What is left over to enter the large intestine is chiefly the indigestible parts of the food. Changes take place in this mass of material as it passes down the large intestine; more or less foul-smelling materials and poisons are produced. It is very important that the bowels move daily; otherwise these poisons enter the blood and are carried to all parts of the body, causing foul breath, and headache, and various other ills. The foul breath of those who are constipated is similar to faecal matter. This proves that when an individual is constipated the poisonous material in the faecal matter of the large intestine spreads throughout the body. It is needless to say that these foul poisons do great harm.

Absorption of the Digested food

When the food is completely digested, it becomes a fluid, like water. This fluid is absorbed into the blood-vessels that are found in the walls of the stomach and small intestine—somewhat as water in which sugar has been dissolved would slowly pass through a bag made of several layers of thick cloth.

After the digested food passes into the blood, it is carried by the blood to every part of the body, and, by producing heat and energy, it serves the same purpose that the coal serves in the locomotive. As the blood passes through those parts that need repairing, it supplies to them repair material from digested food it contains.

From this it is seen that our bodies are composed of the food we eat; and so, in order to have clean, healthy bodies, we should eat only clean, pure food. It is a wonderful fact that the wheat and rice and other articles of food we consume can be changed into muscle, bone, and nerves; but this is what really occurs. This is clear evidence that man's body was planned and created by the God in heaven who has all wisdom and all power; for a method so wonderful and perfect of supplying our bodies with material for repair and heat and energy, could never have come by chance, nor could man have devised it.



NOTE: IMPORTANCE OF WATER DRINKING—As it arrives in the colon, the food residue is in a semifluid state. The small intestine has removed from it all that it requires, and it is now ready for elimination from the system, as far as the small intestine is concerned. The colon now proceeds to abstract the water part of the food residue by absorption, the absorbed fluid being carried away to be eliminated from the body by means of the kidneys, the final result of the absorptive process being the transforming of the contents of the colon into a more or less solid substance. By a process of contraction and relaxation of the colon, in front of and behind the fecal material, it is gradually carried along until it reaches the lower portion of the colon, known as the pelvic colon. Here it remains for a variable length of time, until it is finally evacuated from the system.

"The pelvic colon thus acts as a reservoir in which fecal material is stored until such a time as the body sees fit to get rid of it. In certain individuals who drink but little water the food residue upon reaching the large intestine has become quite depleted of its water supply, and consequently the colon has little upon which to work. Such persons are liable to suffer from constipation, by which we mean a delay in the normal evacuation time of the bowels.

The point to be stressed is that the taking of a sufficient quantity of water is essential to the proper fluid content of the small intestine, and this proper fluid content, in turn, is itself dependent upon the taking of a sufficient amount of water, a vicious circle as we sometimes speak of it. When more fluid is supplied than is needed to keep the food material in proper dilution in the small intestine, the excess is absorbed and carried away to the organs of elimination. On the other hand, when the food material in the small intestine is not sufficiently supplied with water, then the colon receives the food residue with its water content already partially removed. A liberal supply of water is essential to the proper functioning of the colon. Therefore the moral is, Drink plenty of water.—ED.

CHAPTER 4

The Teeth and How to Care for Them

The teeth begin to appear when a child is six or seven months old. At the age of one year a child should have six teeth, and twelve at one and one-half years, at two years it should have sixteen teeth; and at two and one-half years it should have all of the twenty temporary teeth. When the child reaches the age of six, the permanent teeth begin to appear. The first four permanent teeth come in behind the temporary teeth. Next the temporary front teeth get loose, and come out, and the permanent front teeth grow in to take their place. Later all the temporary teeth drop out and the permanent teeth take their places.

The teeth of small children should be cared for and kept clean. They should last until the time comes for the permanent teeth to take their place. Many persons have ugly, deformed teeth due to neglecting to care for their temporary teeth, with the result that these teeth were lost before the permanent teeth beneath were ready to grow up and take their place, and later when the permanent teeth came in, they came in crooked, either projecting toward the front or back.

The permanent teeth are thirty-two in number. The four large back teeth do not make their appearance until after the age of seventeen or eighteen. These permanent teeth should all last to the very end of life. The teeth are as essential a part of the body as the nose or ears or fingers, and the loss of a tooth maims the body as verily as the loss of any of these parts.

Use of the Teeth

The work of the teeth is to masticate food; that is, grind it into fine particles, mix it with saliva, and so begin its digestion. The teeth also aid in speaking; for when they are lost certain syllables cannot be pronounced clearly. The use of

the teeth is so important, and their condition has such an important bearing upon health, that in one of the great nations of Europe the teeth and the tooth brush of every soldier are inspected daily as regularly as the guns are inspected. Some life insurance companies employ dentists to care for the teeth of their policy-holders free of charge, because they find it cheaper to do this than to pay for the sickness and deaths that are caused by bad teeth.

Unclean and Decaying Teeth Injure the Health

One who does not clean the teeth daily may, by scraping the teeth with a toothpick, and noticing the odour, be convinced of the presence on the teeth of decaying material. Millions of germs grow in this decaying material in the teeth. These germs become mixed with the food while it is being chewed; and as the food is swallowed the germs pass along down into the stomach and intestines. Here they ferment and sour the food, and cause indigestion and sour stomach. The germs from the teeth may also reach the tonsils, the nose, the ears, and the lungs, and produce disease in these various organs. When one has decayed teeth, every breath he breathes in becomes loaded with the foul, poisonous gases from the teeth. These foul gases are taken into the lungs, and not only do injury there but also pass into the blood and do injury throughout the body.

(In the treatment of tuberculosis and numerous other diseases, one of the first things the physician must do is to get the patient's teeth in good condition by prescribing daily brushing and by extracting or filling the decayed ones. Without this preliminary care for the teeth, the body cannot get the nourishment necessary to build up strength and to repair the injury caused by disease.

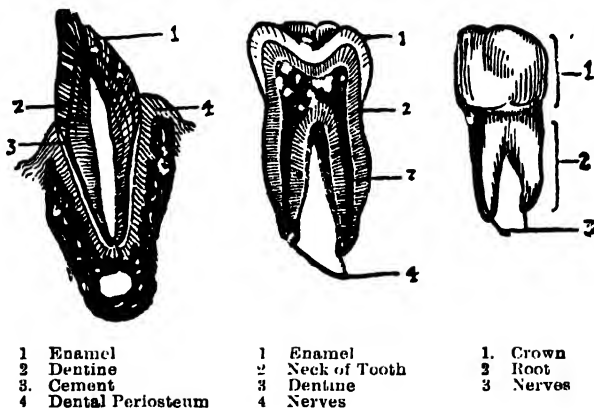
What Causes Decay of the Teeth

Particles of food decaying in contact with the teeth cause them to decay. When a tooth starts to decay it will not be long until the one next to it will decay, just as a decayed mango in a basket will cause the mangoes lying next to it to decay.

The food particles lodge along the edges of the gums in the spaces between the teeth and in the crevices of the grinding surfaces of the teeth. As soon as germs begin to grow

along the edges of the gums, the gums become loosened, and expose part of the roots of the teeth. As the crevices between the gums and the teeth enlarge, these crevices make an excellent place for the germs, and so many grow there that the crevices become filled with foul pus. The teeth pain whenever anything hot or cold is eaten. They finally become so loose that they are useless and must be extracted.

The use of *pan* is a pernicious habit. It leads to the filthy spitting habit. The large amount of saliva that is produced when *pan* is chewed is wasted. The lime chewed with the betel causes the gums to retract and leads to loosening and decay of the teeth. The fact that some people have good teeth who have used *pan* many years does not prove that it is not harmful, any more than the fact that some people who use opium live many years, and does not prove that opium is not harmful.



How to Care for the Teeth

The teeth should be cleansed as often as they are used, but at the very least they must be cleansed in the morning, and at night before going to bed. Particles of food should be picked out of the crevices between the teeth by a wooden toothpick (never use a metal toothpick), and then they should be cleansed by the use of a moderately stiff brush and water. Brush the teeth crosswise, and also up and down. Brush the inside surfaces as well as the outside. Cause the bristles

to enter the crevices, and brush out all the particles of food that may be lodged there. Particles of food between the teeth that cannot be removed by a toothpick can be removed by drawing, with a sawing motion, a fine silk or linen thread down into the crevice. The edges of the gums should also be brushed. If they bleed slightly at first, it will do no harm. After brushing a few times they will become hardened. Some kind of tooth powder should be used at least once a day. Precipitated chalk with the addition of a little powdered orris root or a little oil of cinnamon for flavouring, makes a tooth powder that is as serviceable as most of the powders that you would buy at a store. (See Chapter 50, prescription No. 14.)

Common salt is a very good material to use in cleaning the teeth. Sprinkle a liberal amount on the tooth brush and use it the same as one would use a tooth powder.

After brushing the teeth rub salt into the brush and allow it to remain until the next time the brush is used. Unless this is done the tooth brush becomes very filthy and brushing the teeth with a dirty tooth brush may do more harm than good. Never use unboiled water to clean the teeth. The germs in the unboiled water may cause diarrhoea or cholera. In some places it is a common thing to see an individual who is washing the face and hands take a mouthful of water from the tank or vessel to rinse the mouth. This is a most filthy practise; and not only is it filthy, but it is dangerous, for the same reason that the use of unboiled drinking water is dangerous: for although the water is spit out yet not all of it can be spit out. Enough remains in the mouth to cause diarrhoea, typhoid or cholera.

When a tooth begins to decay it should be filled by a dentist at once. The sooner this is done the better, for it costs less to fill a small cavity than a large one, and it causes less pain. If the tooth is not filled while the cavity is small, not only this tooth but the two next to it will probably decay and be lost. It is better to brush the teeth at least twice daily and to have them repaired by a dentist as soon as they begin to decay, rather than to suffer with toothache and be compelled to have them pulled out, and later spend a lot of money for false teeth, which at best only partly serve the purpose of the natural teeth.

CHAPTER 5

Foods and Eating

The foods needed to nourish the body may be divided into three general classes; namely, carbohydrates (starchy foods); proteids (such as white of egg), fats (oils). In addition to these, the body also requires water, a small amount of mineral matter (such as salt), and a small amount of vitamins. Vitamins are substances found in vegetables and fruits. The body must have a certain amount of each of these kinds of food. It is for this reason that any one food, such as rice alone, or potatoes alone, cannot nourish the body perfectly. Many people injure themselves by subsisting almost entirely upon rice. Beans, wheat, dahl, eggs and vegetables should be eaten with rice; otherwise the body will not receive the nourishment required to keep it in health.

The Biblical record of the creation of man states that his diet was to consist of fruits, grains, and nuts. Man was created by an all-wise Creator; and it is evident that He who created man's body, knew just exactly the kind of food best suited for man. There is abundant proof to show that the body can be kept strong and in perfect health upon a diet of fruits, grains and nuts; and if these can be secured, the use of flesh foods is not necessary.

The best grains for food are: wheat, dahl, beans, rice, maize and the millets.

The best nuts for food are. walnuts, ground-nuts, (peanuts), cashew nuts, almonds and pecans.

Nuts should be eaten only at meal-times, as any ordinary food. They must be well chewed.

The best fruits are: oranges, bananas, mangoes, apples, grapes, apricots, peaches, guavas and figs. Fruits are a very valuable article of diet. They help to keep the blood pure and clean, and also assist in keeping the bowels regular. Most fruits bought in the markets, when eaten raw, should first be scalded with boiling water, and peeled. Some fruits are also

excellent when stewed or baked. Some raw foods, such as raw fruit or raw vegetables, are an essential part of man's diet, because of the vitamins these raw foods contain. It is especially important that children have fresh fruit and fresh vegetables to eat; for their bodies, in order to grow well, must have the material that is contained in these articles.

Eggs and milk, also, are excellent foods. For very young children milk is a perfect food. The milk should always be boiled before drinking. After being boiled, it should not be allowed to stand more than five or six hours before drinking, because disease germs grow very rapidly in milk.

Flesh as Food

With reference to the value of flesh as a food, it is a mistake to think that it is an essential article of man's dietary. In countries where the climate is temperate or warm there is an abundance of other foods that are both cheaper than flesh meat, and much cleaner and more nourishing.

At the present time there are very few of the animals whose flesh is used for food, that are not diseased. Animals such as the cow and the hog are frequently affected with many of the same diseases that affect man. Those who eat the flesh of these diseased animals are liable to contract the disease which afflicted the animal. In some countries pork is one of the common kinds of flesh eaten, and yet the hog is the filthiest animal that exists. It eats all kinds of decayed and filthy materials, and delights to wallow in filthy places. In one of the most ancient records in existence that discusses the subject of man's diet, it is stated very positively that the hog is an unclean animal, and that its flesh should not be used as food.

Many people erroneously think that there is more food value in meat than in any other food. Scientists in America, after careful investigation, have found that this is not true; for there is more food value in one pound of peanuts than in five pounds of flesh foods. From this it is seen that meats are a very expensive food. It is much better, if they can be secured, to use fruits, grains, nuts and vegetables, and thus not only economize in expenditure, but also avoid the numerous harmful results that often come from the free use of flesh meats.

Cooking of Foods

Most foods, with the exception of ripe fruits and nuts, should be cooked before being eaten. Cooking accomplishes three things; *First*, it destroys the disease-producing germs that are found abundantly on most foods. *Second*, cooking makes the foods more easily digestible. There are some foods, such as wheat, dahl, and beans, that man's digestive organs cannot digest until they have been cooked. *Third*, cooking makes food more palatable; for many of the raw foods, such as rice, beans, wheat and the millets, when eaten raw, do not have the pleasant taste they have after being well cooked.

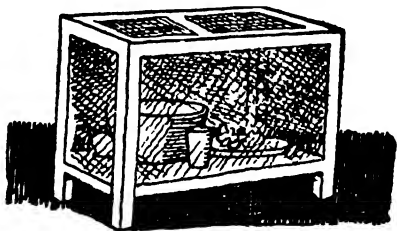
There are three common methods of cooking food, viz., boiling (or steaming), baking (or roasting) and frying.

Frying is a very poor method of cooking, for while foods can be very quickly prepared in this way, yet it were better to spend more time in the cooking rather than to eat fried foods and thereby injure the digestive organs. In the process of frying, the oil that is used forms a coating on each particle of food, very much the same as though it were painted with oil. When the oil-covered food reaches the stomach, it cannot be digested, because the fluid of the stomach will not digest oil. The result is that fried foods lie in the stomach for an hour or more, and generally begin to ferment, causing pain and a burning sensation. Continuous use of fried foods is one cause of dyspepsia.

Proper cooking of the food has much to do with the health of the family. It is very unfortunate that people do not pay more attention to the matter of having a clean room for a kitchen, and of having a person do the cooking who knows how to cook well. Many people when building a house spend a great deal of money on the rest of the house, but a small tumble-down, often insanitary, shed, sometimes without windows or proper ventilation, serves as the cook-house. Clean, wholesome food cannot be prepared in such a kitchen. The kitchen should be one of the best rooms in the house. Windows should be provided in order that an abundance of sunlight may enter. The floor, walls and ceiling should be kept clean. The walls and ceiling should be frequently whitewashed. Buckets or other receptacles

with covers, should be provided for the refuse and the dirty water. Refuse and dirty water should not be thrown out just in front of, or at the side of the door, nor under the floor; for this makes filthy places where flies and disease germs breed rapidly.

A cupboard arrangement, whose sides and doors are made of wire netting, should be provided, in which the food may be kept, in order that flies and other insects cannot crawl over the food (see accompanying illustration). Rats, mice, flies, ants, cockroaches and other insects are all very filthy. They have all manner of filthy and poisonous matter on their feet and bodies. They also deposit their filth on the food. It is not an uncommon sight to see flies that have been eating faecal matter, fly into a house and alight on the food in the kitchen. For this reason, all food should be kept in a place where rats, mice, and flies cannot reach it. A cook should wear clean clothing at all times.



Protect All Food by Screens

The rice and vegetables should be washed thoroughly in clean water. Do not wash them in the foul water of the pond or of streams. The cloths used in washing and wiping the dishes should be changed and washed daily, and then boiled for a few minutes. They should be hung in a place where the flies will not alight on them. After the dishes and other eating utensils are washed they should have water that is boiling poured over them, and then be wiped dry with a clean cloth.

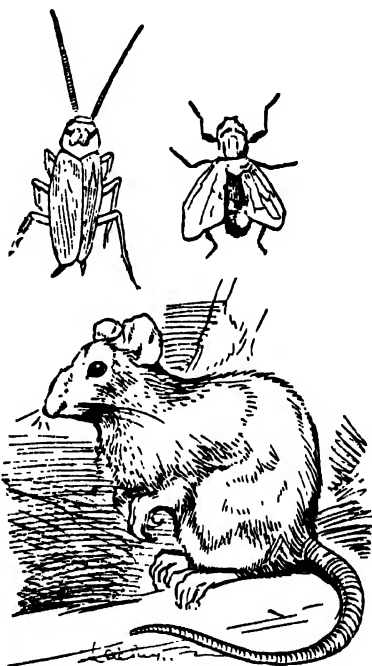
Food, after it has been cooked, should generally be eaten the same day; for when the weather is hot, most cooked foods quickly spoil. Spoiled or decayed food should never be eaten. The decaying of food is caused by germs growing in it. These germs produce poisons; and if such food is eaten, it will be sure to produce diarrhoea and other intestinal diseases. It should be known that food may be spoiled, and yet not have any foul odour or bad taste.

Eating

The room where the food is eaten should be clean. The table and the dining utensils should be clean. The father, mother, and children should gather about the table and engage in cheerful conversation while they are eating; for if the mind is peaceful and happy, the food tastes better and digests better. Eat slowly, and chew the food thoroughly. Have fixed time for eating, whether twice a day or three times a day. The evening meal should be light, and eaten not later than 7 p. m., as a general rule. (Food eaten late at night causes trouble in the alimentary canal, for at night the digestive organs are tired and need rest, just as the remainder of the body needs rest. A large amount of dyspepsia and disorders of the digestive organs are due to the common custom of eating heartily late at night, and then going to bed immediately after eating.)

(The digestive organs should have some time to rest.) Children who are given sweets and other things to eat between meals often have pain in the abdomen, and diarrhoea as a result of it. For any child over seven years of age, three times a day is often enough to eat; and nothing should be eaten between meals.

Too many kinds of food at one meal harms the digestive organs. There are some foods that are good and easily digested when properly prepared, but are made difficult of digestion by improper methods of cooking, and combining them with certain other foods.)



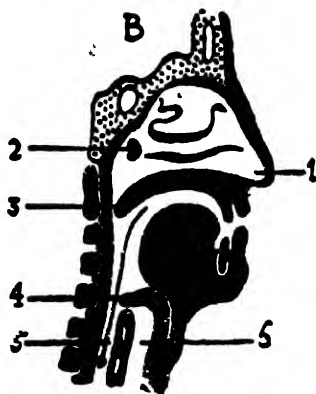
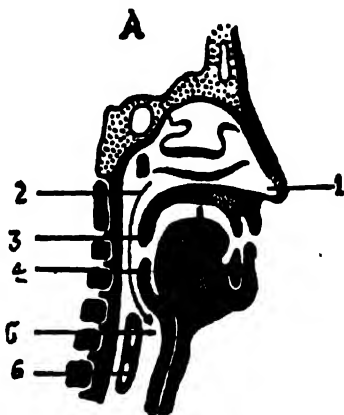
Rats, Flies and Cockroaches are a Constant Menace to Health

CHAPTER 6

Respiration and the Respiratory Organs

A person may live several weeks without food, and several days without drinking; but death occurs in a few minutes when the supply of air is cut off, as in drowning or suffocation. This shows how important it is that the body constantly secure a supply of air. Fire will not burn if it can get no air. This can be proved by lighting a candle and then covering it with a large-mouthed empty bottle. The candle will soon cease to burn. (Air is as essential in sustaining life as it is in keeping a fire burning.)

We breathe the air into our lungs to secure the oxygen that the air contains. Oxygen is a gas which cannot be seen. When air is breathed into the lungs, the oxygen passes into the blood and is carried to all parts of the body. Oxygen is the essential part of the air that the body must have in order to maintain life and produce heat and energy. The air which we breathe into the lungs, con-



(A) Section Showing Position of Air Passages During Inspiration

1. Nostrils 2. Arrow Indicating Course of Inspired Air 3. Uvula 4. Epiglottis Raised to Allow Air to Enter Larynx 5. Larynx, Air Tube Leading to Lungs 6. Cartilage

(B) Section Showing Position of Passages During Act of Swallowing Food

1. Nostrils 2. Eustachian Tube 3. Uvula Directing Food Downward 4. Epiglottis Closing Entrance to Larynx 5. Arrow Pointing Down Esophagus 6. Larynx

tains an abundance of oxygen; but that which we breathe out contains very little, and is not fit to be breathed again.

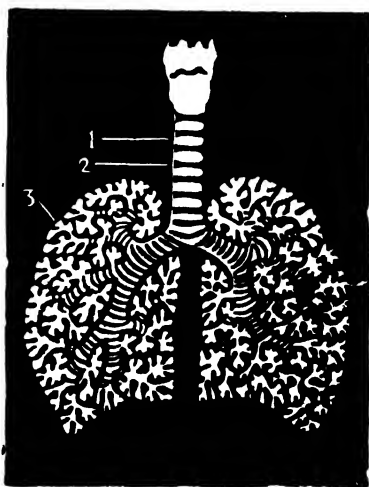
The air that is breathed out from the lungs not only is deficient in oxygen; it contains also poisonous matter that has come from the blood. This poisonous matter cannot be seen; but it is known that if a large number of persons are in a tightly-closed room for a short time, one who comes in from the outside can notice at once that the air has a bad odour. Many of those in the room, also, will have a headache and feel dizzy. The bad odour, the headache and the dizziness are all caused by air that comes from the lungs.)

If one breathes several times into a clean, large-mouthed bottle, then immediately corks the bottle tightly, and allows it to stand in a warm place for a few days, it will be noticed, upon uncorking the bottle, that the air within has a very foul odour. This foul odour is due to some of the poisons that are being constantly breathed out from the lungs. (If people live in a room without opening the windows to let out the foul air and let in the fresh air, they injure the body by breathing over and over again the foul, poisonous air. Such people easily catch cold, and easily contract lung diseases like pneumonia or tuberculosis.)

In every room in the house there should be one or more windows. These windows should be several feet high and several feet wide, so that the room will get a large amount of sunlight and fresh air. Clothes and curtains should not be hung in front of the windows, thus shutting out the light and the air.

Organs of Respiration

The air we breathe passes in through the nostrils and then on back through the pharynx. At the lower end of the



1. Trachea. 2. Carina of Trachea.
3. Alveoli or Air Sacs

pharynx it enters the trachea. This is a stiff tube that can be felt in the front part of the neck. The trachea divides into two branches at its lower end. One branch goes to the right lung, and one branch to the left lung. The lungs are made of a countless number of small air sacs (see accompanying illustration). Breathing is simply the alternate filling and emptying of these air sacs.

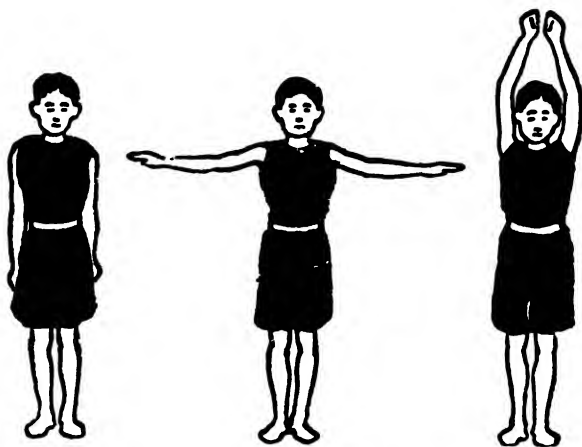
Breathing

We breathe about sixteen or eighteen times a minute. The heart beats four times to each breath. Exercise and fever increase the rate of breathing.

Everything that has life, whether animal or plant, breathes. The plant breathes through its leaves. The frog, and some kinds of worms, breathe through the skin. The fish that lives in the water gets air from the water that passes through its gills. In the account of man's creation, as recorded in the second chapter of Genesis, it is stated that "The Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul." The Bible states that God "giveth to all life and breath," and that "the breath of all mankind" is in His hand. The evidence that the all-powerful God in heaven controls our breath is seen in that when we are asleep our lungs continue to draw in the fresh air and to expel the poisonous air. While asleep, we are entirely unconscious; and if we had to oversee our breathing, we would die the very instant we went to sleep. Breathing and the pulsating of the heart are both called involuntary movements. They are under the control of a part of the nervous system. But to say that breathing is an involuntary, automatic action, does not explain it; for the question remains unanswered as to how a part of the nervous system can keep the heart beating and the breathing going, and as to how the breathing and heart action started in the first place. Careful enquiry into the origin, control and wonderful adaptability of the act of breathing leads to but one conclusion, which is, that there is a power outside of a man and superior to man that controls the breath which keeps life in the body. This is the power of God. A God who exercises such a kind watchcare over our life, is surely worthy of our sincere reverence.)

Sit and Stand Erect

It is important that we sit and stand erect, in order that the lungs may have plenty of room to expand each time the breath is drawn in. Thus the body secures a larger supply of fresh air. When one sits and stands erect, the body not only looks better, but it is helped to grow stronger and more robust. (To stand or sit with a hunched back, is not only ill-looking but makes it impossible for the lungs to expand fully; the body does not secure a sufficient supply of air, and, as a result, becomes weak, and colds and tuberculosis are easily contracted.)



Deep Breathing Exercises

Those who are working indoors, and especially those who sit down to do their work, should make it a practice to stand erect several times a day and take several deep breaths, in order to completely fill the lungs with fresh air, and to completely rid the lungs of the poisonous carbon dioxide. (See the illustration showing how to practise deep breathing.) Carbon dioxide is the name of a poisonous gas that is in the exhaled air. The gas given off by a charcoal fire, which often causes headache and dizziness, is composed in great part of carbon dioxide.

Mouth Breathing

The nose is the natural entrance-way for the air, and the mouth for the food. The nose is lined with numerous small hairs that help to strain out the dust and germs that are in the air we breathe. As the air passes in through the nose, it is also warmed and moistened. When one breathes through the mouth, the air is not warmed and moistened before it enters the pharynx, and so it makes the pharynx dry and causes it to produce much mucus. This leads to coughing and colds. When the nose is not used for breathing, it becomes obstructed and adenoids develop in the location shown in one of the illustrations of Chapter 36. The tonsils also become enlarged and diseased. From this it is evident that breathing through the mouth is very harmful, and should be avoided. A child who breathes through the mouth should be taken to a physician, in order that the physician may examine the nose and throat and remove any adenoids that may be found; otherwise, the child will never be strong and healthy. His body will be dwarfed, and he will be very dull in his school work. (The cause, prevention and treatment of mouth breathing [adenoids] is discussed in Chapter 36).

Dust in the Air Injures the Lungs

The dust that flies in the air, and that is seen on the floor and furniture of our houses, is not composed entirely of particles of earth, but contains innumerable disease-producing germs. When this dust is breathed into the lungs along with the air, it passes down into the lungs and remains there. The disease germs multiply, and produce such diseases as tuberculosis, pneumonia, influenza and bronchitis. In order to avoid the nuisance and danger of dust, the streets should be sprinkled in dry weather, and people should not spit on the floors or on the streets. The sputum of one who has a cold or who has tuberculosis is filled with disease germs; and if one so afflicted spits on the floor or the street, the sputum soon dries and becomes dust. The dust is breathed in by other people, and causes them to have colds or tuberculosis. Either expectorate in the gutter by the side of the street, or expectorate in pieces of paper carried for the purpose. This paper should not be thrown away, but should be burned. Those afflicted with tuberculosis

should always expectorate in paper or old cloths and later burn these papers or cloths in fire.

When sweeping the floor, water should first be sprinkled upon it, or, better yet, scatter damp rice husks, or dampened saw-dust on the floor and then sweep up the dust together with the damp husks or saw-dust. Use the broom in such a way as not to make the dust fly about the room.

Alcohol and Tobacco Injure the Respiratory Organs

People in every land have two habits that are extremely harmful to the organs of respiration; namely, tobacco smoking and drinking of spirituous liquors. The tobacco smoke injures every part of the respiratory organs. It inflames the lining membrane of the nose, throat, trachea and lungs. It produces coughing. It so injures the lining of the lungs that tuberculosis and other diseases are more likely to be contracted.

What is said of tobacco is also true of all kinds of alcohol. When a man drinks alcohol, it can be smelled on his breath in just a short time after it was drunk. This is due to the fact that as soon as the alcohol has entered the blood, and has been carried to the lungs, the lungs try to get rid of the poison as quickly as possible. Physicians know that alcohol drinkers easily contract pneumonia and tuberculosis; and moreover, when they contract one of these diseases they have less chance of recovery than do those who do not use alcohol. This is conclusive proof that alcohol injures the lungs.

Alcohol and tobacco are poisons that injure not only the lungs, but every part of the body.

Summary of Important Points About Breathing

1. See to it that your house is well ventilated, day and night.
2. In the day time, be out in the fresh air as much as possible, and at night open the sleeping room windows wide, to allow the fresh air to enter freely. The composition of the air at night is just exactly the same as it is during the day, therefore do not fear the night air and shut windows and doors to keep it out of the house. Even if the doors and windows are shut, the air in the house is just as much night

air as that outside the house. It is not the night air that is to be feared: it is the disease-carrying mosquitoes that are dangerous. They can be guarded against by using a mosquito net over the bed.

3. Fill the lungs full of air each time you inspire (breath in). To do this, you must sit and stand erect. Throw back the shoulders. Keep the chin up high, and draw it in close to the neck.

4. Avoid breathing dusty air.

5. Do not use tobacco in any form, whether *huqqa*, pipe, cigarette, or snuff.

6. Do not drink any kind of alcohol.

7. Always breathe through the nose.

8. Do not wear a tight belt about the waist.

9. Practice deep breathing several times daily.

10. Never cover the face with the bed covers. Those who cover the face when they go to bed, poison their bodies by breathing back into the lungs the poisons which have been thrown out from the lungs. This custom is most injurious.

Proper Kinds of Dwelling Houses

Houses should not be built in low places where the water covers the ground underneath the house each time it rains. Mosquitoes breed in this water and cause those in the house to contract malaria. The water causes the rotting of everything that falls into it, and in this way not only makes the living rooms of the house very damp and chilly, but also causes foul odours that are harmful to the body.

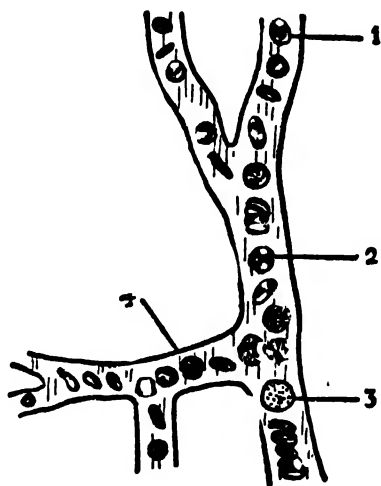
Chickens, pigs, dogs and cattle should not be kept in the house or under it. Their offal fills the house with foul odours. There are fleas and ticks on their bodies that may cause those living in the house to contract disease. Many of the domestic animals have tuberculosis and there is great danger of human beings catching the disease from the diseased animals. The space under the floor should not be used for animals nor for storing grain or fodder. The space should be left open so that the wind may freely blow through, and in order that no place may be provided where rats and mice and insects are harboured.

CHAPTER 7

The Blood and the Organs of Circulation

When a small drop of blood is examined with a microscope, a large number of small, round, red bodies will be seen within it. These are called red blood corpuscles. In addition to these there are also many small white bodies in this drop of blood. These are called white blood corpuscles. These red and white blood corpuscles float in the blood stream very much like so many small, round fish float in a river.

The digested food is also carried in the blood. The blood might well be called the body's Transportation Department, because it transports the oxygen that is brought into the body by the lungs, and the digested food that has been prepared by the stomach and intestines, to every part of the body, to supply the needs of each part. It also collects from every part of the body the harmful waste matters and carbon dioxide, and transports these back to the lungs, kidneys, and skin, where they are eliminated from the body in the air we exhale, and in the perspiration and the urine.



1. and 2. Red Corpuscles 3. White Corpuscle
4. Blood Vessel Wall

The Heart and Blood Vessels

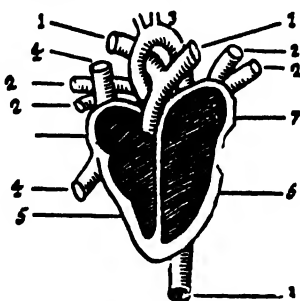
The blood is constantly flowing in the blood vessels. If the skin of the forearm and the walls of those veins that

are seen beneath the skin were made of glass, one could see the blood within these veins flowing rapidly in a direction from the hand toward the shoulder.

The blood is caused to flow in the vessels by the contractions of the heart. The heart, which is just about the size of one's closed fist, and hollow inside, is like a powerful pump that keeps the blood circulating in every part of the body.

The heart of a full grown person beats about seventy times a minute. Exercise causes it to beat faster. Fever also greatly increases the number of times it beats in a minute. The heart of a woman beats eight or ten beats more in a minute than a man's heart. A child's heart beats faster than an adult's, for example, a five-year-old child's heart will beat ninety to one hundred times a minute.

By noticing the picture of the heart in this chapter, there will be seen a large blood-vessel that is connected with the upper left-hand corner of the heart. This blood-vessel is called the aorta. It passes upward, and gives off branches which conduct blood to the head and arms. Then it bends and runs down behind the heart, and gives off branches, which supply blood to every other part of the body.



1. Pulmonary Arteries 2. Pulmonary Veins 3. Aorta 4. Vena Cava (Vein) 5. Right Ventricle 6. Left Ventricle 7. Left Auricle

When the heart contracts, the blood within it is forced out into the aorta and on through its numberless branches to every part of the body. As the blood flows along, it flows through smaller and still smaller blood-vessels, and finally it enters blood-vessels which are so small that if three thousand of them were placed side by side, they would cover a space only one inch wide. These small vessels are called capillaries. The capillaries are so numerous and so close together, that one cannot stick the finest needle into the flesh of any part of the body without touching one or more of them.

After flowing through the capillaries, the blood returns to the heart, through the veins. If the heart were to be cut open, it would be seen to be separated into a left half and a

right half. The blood that passed out through the aorta came out of the left side of the heart; the blood returning from all parts of the body returns to the right side of the heart. After passing through the right side of the heart, it is forced out through the lungs. While going through the lungs, the blood gets rid of some of the waste material it has brought back from all parts of the body, and also takes in oxygen from the air breathed in the lungs.



Blood Vessels of the Arm

The Life is in the Blood

If a cord were tightly bound about a finger, and allowed to remain there, the finger would soon become black, and in a couple of days would die and decay. The finger dies, because its supply of blood is cut off. Whenever the supply of blood to any part of the body is cut off, that part of the body dies. From this it is evident that the life of every part of the body depends upon the blood. Thousands of years ago, man's Creator, the God in heaven, said, "The life of all flesh is in the blood thereof."

In the blood and in the heart we see wonderful evidences of God's power. There is the heart. It begins to pulsate while the child is yet in its mother's womb, and continues at the rate of not less than seventy times a minute for a life-time

of eighty or ninety years. We do not have to give thought to the heart, to cause it to beat, neither can we by giving thought, stop its beating. The heart is a self-starting, self-propelling engine, a myriad times more wonderful than any machine man has ever made. Even while we sleep the heart continues its work of pumping the life-sustaining blood to all parts of the body. It does not rest with us to keep it beating. It is the God in heaven, Who created man, that sets the heart to beating, and makes it continue to do so, whether we wake or sleep.

When any part of the body is injured, it is the blood that heals the injured part. When disease germs secure entrance into the body, the white blood cells, of which mention has been made, act the part of a guard of fearless soldiers, and seize upon the germs and destroy them. It is only when the disease germs are too numerous or too poisonous, or when the white blood cells are enfeebled through the use of alcohol or tobacco, or some other harmful thing, that these white blood cells are not powerful enough to destroy the germs.

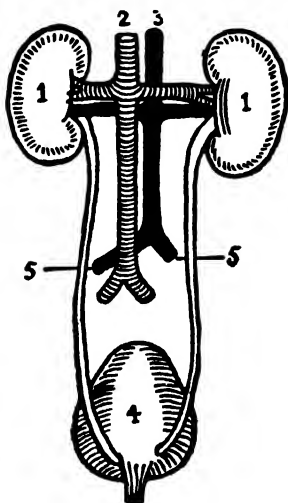
Sometimes, by use of the microscope, the white blood cells can be seen in the act of seizing upon the disease germs. Although they are so small that if 2,500 of them were placed side by side, they would cover a space only an inch wide, yet they can be seen to move and seize upon the poisonous germs and destroy them. They act as though possessed of an intelligence, and we recognize in this another evidence that God not only created man, but that He sustains man's life. He also has made provision so that the body can protect itself against poisonous disease germs or other enemies that would destroy life.

Since life is in the blood, and since it is the blood that heals, it is important that we have good blood. The blood is made from the food we eat. If the food is good and pure, the blood will be pure. If the food is poor in quality or quantity, the blood cells are starved and as a result every part of the body suffers. By drinking an abundance of pure water, the blood is cleansed from waste and poisonous matter. Exercise is essential in order to have good blood. The use of intoxicating liquor and tobacco injures both the red and the white blood cells, and destroys the life-sustaining and the healing properties of the blood.

CHAPTER 8

The Kidneys

It is a common sight to see the men who operate a steam engine cleaning out the ashes and cinders from the engine. These ashes and cinders come as a result of burning coal to make the engine move. If they were not cleaned out, it would not be long before the engine would be useless and unable to go. This illustrates what occurs in our bodies. Every day we take food and drink into the body, just as coal is placed in the fire-box of the steam-engine. This food burns in our bodies, and eventually leaves a certain amount of ash, or waste, that must be cleaned out of the body. (The body or some of its part are constantly in motion, and when anything moves this must result in a wearing-out process that gives rise to waste materials. This worn-out material must be cast out; for if not cleaned out, the waste materials act as poisons to injure the body and cause sickness. In chapter 6 it has already been explained how the lungs have a part in helping to remove some of these poisonous waste matters. It is the work of the kidneys also to remove waste matter from the body.)



1. Kidneys 2. Artery 3. Vein
4. Bladder 5. Ureters

The kidneys are two bean-shaped organs. They are fastened outside the back wall of the abdominal cavity, one on either side of the spinal column. (See manikin, frontispiece.) While the blood is flowing through the kidneys, they strain out some of the poisonous waste

matters. The waste matters, together with the water that the kidneys take out of the blood, make up the urine. The urine passes from the kidneys through a tube that leads from each kidney down to the urinary bladder, and it is voided from the bladder at the time of urination.

An adult will void from one to three pounds of urine in a day. When a person is in good health and drinking as much water as he should, the urine will be a very light yellow colour; oftentimes it will be almost as clear as water. If the urine voided is of a red or brown colour, it shows that too little water is drunk.

In every case of illness in which there is a fever, the work of the kidneys is greatly increased, and it is very important that the sick person drink large quantities of pure water. It is always well to have water conveniently near so that the sick person can drink frequently. In case the sick do not use large quantities of water, the poisonous waste matters are not eliminated and the disease will be aggravated.

Alcohol, tobacco, pepper, curry, ginger, etc., all do serious harm to the kidneys. It is a part of the work of the kidneys to cast out of the body any thing in the blood that is harmful, such as the articles mentioned here. In casting these harmful things out of the blood, the kidneys are themselves injured, in somewhat the same way that a policeman arresting a desperado in order to protect other people, may be injured seriously by the man he is arresting.

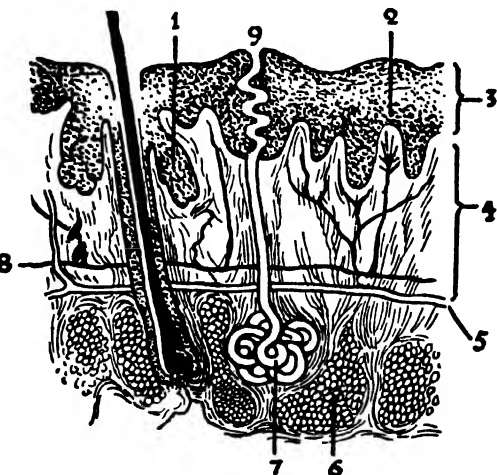


CHAPTER 9

The Skin

The skin forms the outer covering of the body, and protects the parts beneath it. It may be compared to a lined garment, for it is composed of an outer and an inner layer. When the skin is accidentally blistered by boiling water, the fluid in the blister is between these two layers.

There are large numbers of very small sweat glands in the inner layer of the skin. Each one of these has a little tube that leads out to the surface of the skin. If the hands are very warm, you can press on the end of one of the fingers and see the little drops of sweat coming out of the mouth of the sweat tubes. (The sweat is not all composed of water; in addition, it contains salt and waste matters. These waste matters are very similar to those in the urine.)



Section Through the Skin

1. and 2 Two Types of Nerve Endings 3. Dead Epidermis 4. Derma or True Skin 5. Artery 6. Fat Cells 7. Sweat Gland 8. Nerve 9. Sweat Pores Passing Through the skin

(If the kidneys and the skin did not eliminate these waste matters, self-poisoning would result very quickly. The skin alone eliminate a large amount of poisonous matter. If the skin were coated with some kind of paint or varnish, so that the perspiration could not escape, death would occur in a few hours.) Many people think that it is only when they can

see perspiration on the skin, that they are perspiring. This is a mistake. Perspiration is continually issuing from all the sweat glands of the body; but much of the time it comes out so slowly that it evaporates and disappears at once, and so cannot be seen. Warmth and exercise increase the amount of perspiration. (It is well for every one to take sufficient exercise daily to cause free perspiration, for this not only keeps the skin active and healthy but also helps to keep the blood clean and pure.)

After perspiring freely, one may see, as soon as the perspiration dries up, a thin layer of salt left on the skin. This salt comes out of the body in the perspiration. Together with the salt there are other waste matters. These waste matters cause the skin and clothing to have a foul smell in case the body is not frequently bathed. If the salt and waste matters and dust that are constantly accumulating on the surface of the skin are not removed by frequent bathing, they will clog the mouths of the sweat ducts, and interfere with the work of the sweat glands. Thus poisonous matter accumulates in the blood, and sickness results. In hot climates every one should bathe the whole body daily.) Even during the cold season a cleansing bath should be taken two or three times a week.

For purposes of cleanliness, it is best to use warm water and soap. A bath in cool or cold water, followed by vigorous friction with a towel, is an excellent tonic to invigorate the body and strengthen it so that colds and other diseases will not be contracted easily. The best time to take a cool bath is in the morning. A cool bath should never be taken when one is hot or tired. Neither should a warm or cool bath be taken immediately after eating. When the weather is very hot, and a bath is taken to cool the skin, the best method is to use a spray.

It is important that people who are in good health bathe frequently in order to ward off disease. It is even more important that those who are sick be bathed daily; for the waste matter that accumulates on the skin during sickness is not only larger in amount than during health, but it is also more poisonous. Most sick people would recover much more quickly if they were bathed daily. There is no danger of the

sick person's catching cold if bathed in a proper way. The water should be warm. First bathe the right arm, and dry, and cover it; then bathe the left arm, and dry, and cover it; then bathe the front of the chest, and dry, and cover it; and so on for the whole body. In this way all danger of the sick person's taking cold may be avoided.

Clothing

The kind of clothing that should be worn depends upon the climate. It is important that the clothing worn next to the skin should be changed and washed frequently. In hot climates it should be changed and washed daily, or at least every other day. When clothing becomes foul because of the waste matter from perspiration or from the oil glands of the skin, this foul matter not only has a bad odour, it also irritates the skin and causes pimples and small pustules. The poisonous substances in this foul matter may return through the skin back into the body and do harm inside the body.

The Hair and the Oil Glands of the Skin

By the side of the root of each hair there is a small gland that produces oil. This oil comes out on the surface of the skin, and keeps the skin from becoming dry and cracked. This oil also oils the hair. One of the very best ways to keep the hair of the head looking nice and to make it grow fast, is to brush it vigorously daily. The hair should be washed occasionally with warm water and good soap to remove the dust and oil.

Baldness

Baldness is caused by dandruff. Dandruff is caused by germs that grow in the oil glands of the skin. The disease is spread by hair brushes and combs. Therefore everyone should have his own brush and comb, and not use brushes and combs that other people are using. Baldness is also caused by constant wearing of a hat indoors. Baldness may be caused by too free use of the oil that many women use to oil the hair. It is entirely unnecessary to oil the hair if one will only brush it well daily.

In case of dandruff, or when the hair begins to fall out, the following treatment may be used. Rub vigorously into

the hair a handful of dampened salt. The rubbing should be so vigorous that the scalp becomes very red. Following this some of the ointment of prescription No. 5, or the lotion of prescription No. 6, should be rubbed into the scalp daily.

The Sense of Touch

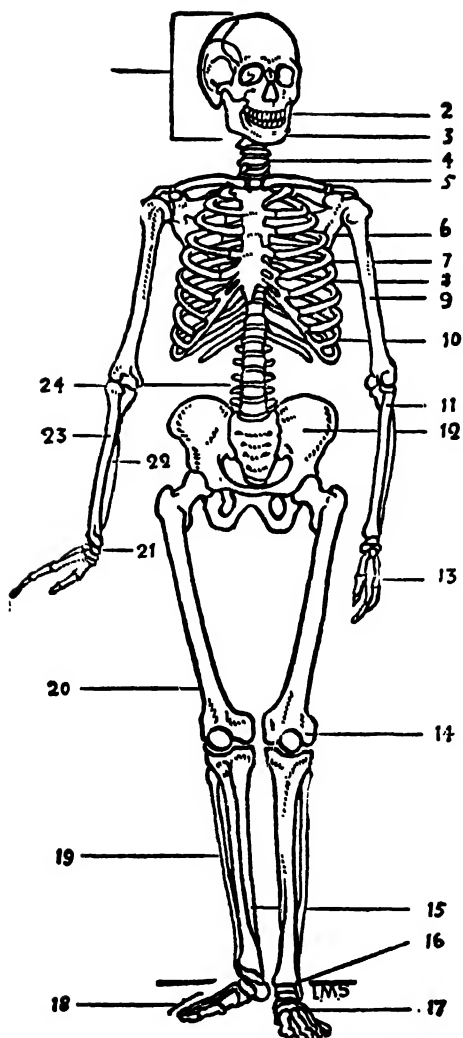
When we place the hand on some article we say we feel it. We feel things that come in contact with any part of the body, because there are numerous nerves in the skin. When these nerves are pressed upon in this way, they send a message to the brain, and thus we know whether a thing is hot or cold, smooth or rough, light or heavy.

The sense of touch can be highly trained, so that, as in the case of the blind, one can read by rubbing the fingers over little raised points on a sheet of paper. Man's Creator provided these nerves in the skin as a means of protecting the body, and to enable one to become skilled in the handicrafts and arts. Unless the sense of feeling was in the skin, a part of the body might be in contact with something that was cutting or burning it, and yet we would not know it. Without this sense of feeling we could not learn to use the hands, in doing the numerous things we do constantly with our hands.

Since the skin has so many functions and has so much to do with the health and appearance of the individual, it should be kept in good condition. It not only should be kept clean outside by frequent bathing, but by avoiding the use of tobacco and other harmful articles that have to be excreted by the skin, it should also be kept clean inside.

The Finger Nails

The finger nails are useful in protecting the ends of the fingers and in enabling us to pick up and grasp small articles. The finger nails should be kept trimmed short and not allowed to grow out beyond the ends of the fingers. When the skin is scratched by the finger nails it often becomes infected. Cholera germs and many other kinds of germs may grow under the nails, and when at meal times or at any time the fingers are put in the mouth, these germs may enter the stomach and cause cholera or some other disease. Even when the finger nails are kept trimmed the dirt that collects under them should be cleaned out often by means of a knife or a sliver of wood.



1. Skull or Cranium 2. and 3. Jaw Bones 4. Axis and Atlas 5. Clavicle 6. Scapula 7, 8, 10 Ribs 9. Humerus 11. Radius 12. Hip Bone 13. Phalanges or Finger Bones 14. Patella or Kneecap 15. Tibia or Shinbone 16. Tarsals 17. Metatarsals 18. Phalanges 19. Fibula 20. Femur 21. Carpals 22. Ulna 23. Radius 24. Spinal Vertebrae

CHAPTER 10

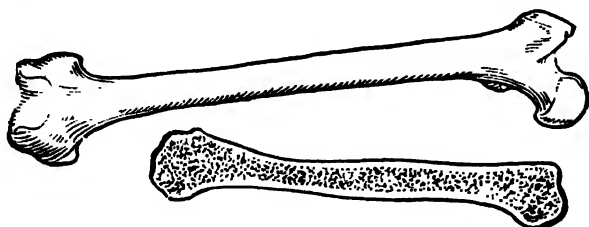
The Bones and the Muscles

The illustration here shown is the human skeleton. The skeleton is made up of two hundred and six bones. In a living man, these two hundred and six bones are all alive, and have blood and nerves in them. The skeleton gives the body its shape and enables man to stand erect. Without the skeleton, man could not stand erect and walk in the upright position, but would be compelled to crawl about like the worms.

By carefully examining the different parts of the skeleton it will be seen how admirably each part is adapted to its special use. For example, the skull is shaped somewhat like a large round ball. It is hollow inside, and this makes a place for the brain, where it is protected from injury.

The ribs make another box-like cavity, for the protection of the heart and lungs.

The bones of the legs and arms are long and slender. This enables us to move the arms and legs freely and quickly.



Femur—or Long Bone of the Upper Leg

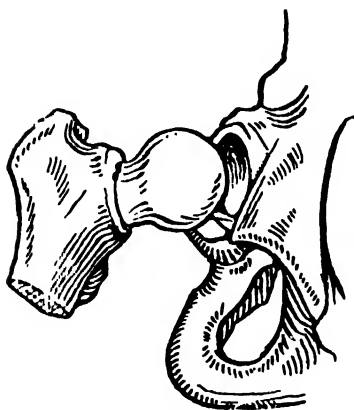
The bones of a small child are very soft, and for this reason care should be taken that they be not deformed. If a new-born infant is allowed to lie on one side all of the time, the head will be deformed, one side of the forehead will bulge forward, and the other side will be flattened. The infant should be laid on one side for a few hours, and then turned over on the other side. If a small child is allowed to stand on its

feet too early, the legs become bent. The seats in school-rooms provided for children should be properly made so that there will be a back rest. The seats should be low enough so that the child's feet can rest on the floor. Many children have humped backs because seats in the schoolroom are too high and have no back-rests.

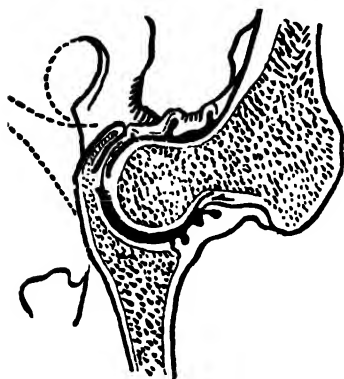
When children grow slowly, and their bones are noticeably small and weak, it is because they are not getting the proper food. They should have those kinds of foods that will build

bone, such as foods made from wheat, peas and beans, lentils, dhal and millets, together with a good supply of goat's or cow's milk.

Where two bones come together, a joint is formed. Some of these joints, like those in the fingers, are called hinge joints because the fingers can shut and open like a door. The shoulder-joint is of another kind. It permits not only of flexing, but of swinging the arm around in a circle.



Ball and Socket Joint at Hip Femur and Pelvis



Femur in Place in Pelvis : Marrow of Bones also Shown

At the place where two bones come together to form a joint, they are fastened together with strong ligaments. Sometimes when a joint is moved too forcibly, these ligaments are torn loose. This produces what is called a sprain.

Bones are sometimes broken. If a broken bone is properly cared for, it will repair itself, very much the same as the broken branch of a tree will repair itself.

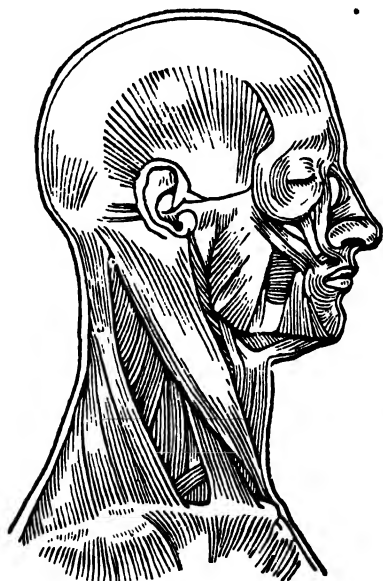
The treatment of sprains and fractures is given in Chapter 45.

The Muscles

If the skin and the fat under the skin were removed, the body would present the appearance shown in the illustration of the muscles in this chapter. (Also p. 53.) Living muscle is red. The red meat of beef or mutton, is muscle. There are over five hundred muscles in the body. The muscles are of many different shapes and sizes. In the picture of the muscles it may be seen that some are round, some are long, some are short, some are large, and some are small.

Place the right hand on the left upper arm, and bend the forearm. By so doing one can feel the large muscle that bends the arm. When a person is chewing, one can see, in the temple, the movement of the muscles that lift the lower jaw. The work of the muscles is to move the limbs or other parts of the body.

It is not only when we move about that the muscles have work to do; but even when standing still it requires the constant contraction of many muscles to keep the body erect. Many people, while standing or sitting allow the muscles of the back to relax; the result is that the back becomes humped and the shoulders droop forward. This not only is unsightly, but also causes the walls of the chest to press in on the lungs, so that deep breathing is interfered with. When sitting on a chair or at a study desk, the body should be erect. When standing, stand as tall as possible. Stand as though you were trying to elevate something that is



Muscles of Head and neck

**Correct Sitting Posture****Incorrect Sitting Posture**

Correct and Incorrect Standing Posture
 teachers must, therefore, see that children sit and stand erect.

lying on top of the head. Hold the chin in close to the front of the neck. The chest should project toward the front. The front wall of the abdomen should not be allowed to protrude, but should be drawn in toward the back.

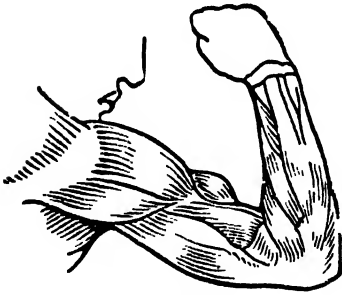
The importance of sitting and standing erect cannot be too strongly emphasized. We may make our blood ever so pure by supplying it with proper food; but if habitual incorrect posture cramps the blood-vessels so that the life-giving fluid cannot circulate in all parts of the body, ill-health is sure to result. Parents and

CHAPTER 11

Exercise

It is absolutely necessary that a person exercise in order to keep the body strong and healthy. Every one knows that a machine that is not used becomes rusty, and soon becomes useless. The same is true of our bodies. If we should sit or lie down, and not use the legs for several weeks, they would become so weak that it would be impossible to stand up and walk. Unless we exercise, the muscles become small and soft, the digestion is poor, and the blood loses its power to destroy the disease germs that may chance to enter the body.

During exercise, the heart beats faster, and in this way



Muscles of the Arm

every part of the body gets a better supply of blood. During exercise, one breathes oftener and in this way every part of the body gets a more abundant supply of oxygen. An ancient proverb says, "A sound mind in a sound body." The mind becomes dull, if the muscles of the body are not exercised. If one desires to have a good memory and be



able to study diligently and learn rapidly, he must exercise the muscles of the body daily.

The arm of the blacksmith is large and strong, because he constantly uses it. The legs of the hill coolies are large and powerful, because they walk so much. On the contrary, the arms and legs and the whole body of many students and business men are small and weak, because they sit much and do not exercise their arms and legs. Many people think that those who are educated should not work; that it is only the coolie class that should work with the hands. This is a great mistake. Muscular work is dignified and honourable. Muscular exercise is as essential for girls and women as it is for boys and men; for everyone should feel ashamed to have soft, weak muscles.

When God created man's body, He knew just what the body required to keep it strong and healthy; and so He not only provided food to nourish the body, but He also made provision that man must work and exercise his body in order to secure food. Later He said: "In the sweat of thy face shalt thou eat bread." The man who eats his food daily, and does not exercise the muscles of his arms and legs, is violating one of the important laws of health, and is absolutely certain to reap the penalty by having a weak, sickly body.

There are many forms of exercise; but the very best forms are found in doing ordinary work, such as gardening, carpentry, etc. Walking, running, and swimming are all good forms of exercise.

After children have been sitting quietly at their study-desks for some time, the breathing becomes very slow, and very little air is taken into the lungs at each inspiration. The heart beats slowly, and the mind becomes dull, so that the child cannot study well. For this reason teachers should give the children recesses, in order that they may get out of doors to run and play. In addition to the regular recesses for play and recreation, the children should be given stretching and breathing exercises for three or four minutes, once or twice during the forenoon and once or twice during the afternoon. These exercises make the heart beat faster, and cause the children to breathe deeper and faster, and cause their minds to become more active.

CHAPTER 12

The Nervous System

The body has many organs. Every organ has a work to do. For example, the stomach helps digest food, the kidneys help excrete poisonous waste matter, the skin regulates the heat of the body, the heart causes the blood to circulate. Each organ must do its proper amount of work at the proper time, and all the organs must work together in harmony, or the body will become sick and die.

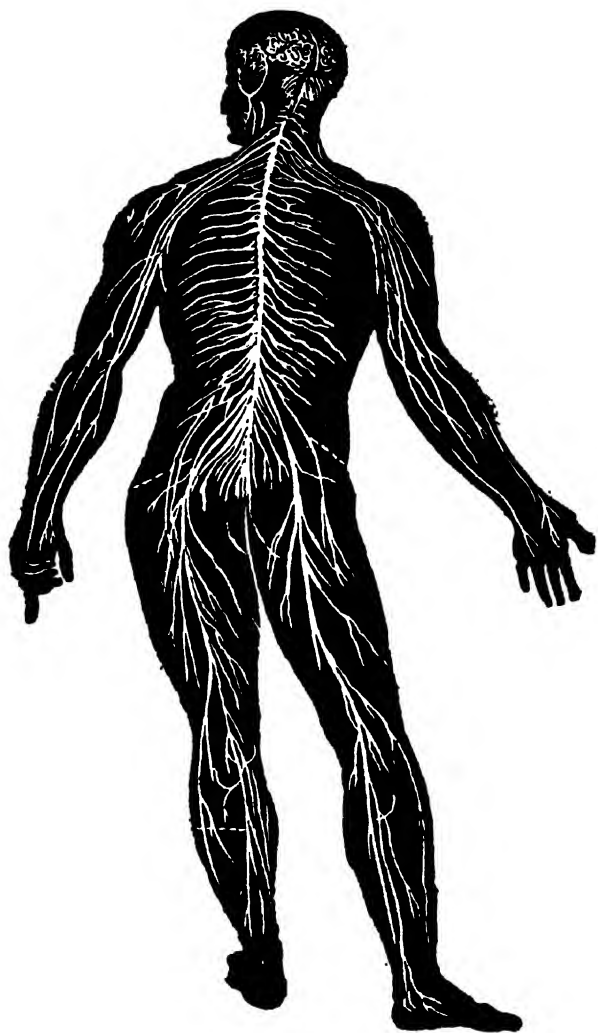
The body with its numerous organs may be compared to an army. Some men in the army must do one thing, some must do another; but every man must do his work at the proper time, and, most important of all, they must all work together as one man. This requires that there be one man who rules and regulates the work of the army as a whole, and the work of every soldier in the army. So likewise in the body there must be a ruler that directs and regulates every part of the body. This ruler is the nervous system.

The work of the nervous system is to make all parts of the body work at the right time in the right way and do the right amount. When we wish to put out the hand and take hold of some article, it is the nervous system that makes the muscles of the arm move. When we wish to walk, the nervous system makes the muscles of the legs do the work. The nervous system makes the lungs, heart, kidneys and liver do their work. It governs all parts of the body. When we think, or remember, it is a part of the nervous system that does the thinking or remembering.

The Brain and the Spinal Cord

The two main divisions of the nervous system are the brain and the spinal cord. The brain is protected by a bony box, the skull.

The spinal cord is really an extension of the brain in the form of a long cord. The cord is about as thick through as

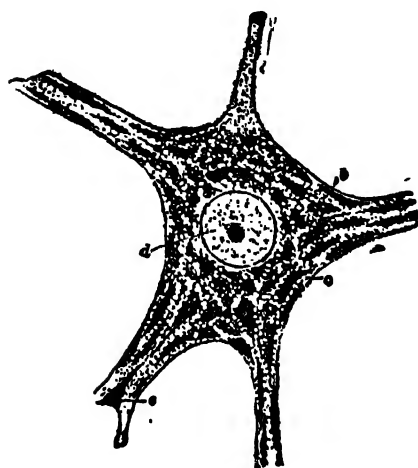
**General Nervous System**

the little finger. It is attached to the under part of the brain, and passes out of the skull through a large opening. The spinal cord is protected from injury in a wonderful way. Each of the twenty-four vertebræ (the 24 bones of the backbone) that are piled one upon another to form the vertebral column, has a large hole in its centre. As these bones are piled one upon another, the holes come one above another, and make a bony walled tube for the spinal cord. The spinal cord extends down into the backbone as far as the small of the back.

From the brain and spinal cord, many small nerves, some of them smaller than the smallest filament of silk, go out to all parts of the body. The nerves are so numerous, and distributed so thickly, that the smallest needle cannot be thrust into any part of the body without touching one, and causing pain.

Nerve Cells and Fibres

If the brain and spinal cord could be picked into pieces, they would be found to be made up of numerous little white thread-like structures. These are the nerve fibres. At one end of each nerve fibre would be found a small knot-like enlargement. This is called the nerve cell. Almost all of



A Nerve Cell

H. L. 4.

these little nerve cells are in the brain and spinal cord. These nerve cells are the part of the brain that does the thinking, and remembering, and that makes the muscles move, and governs all the parts of the body. Just as the telegraph wires make a connection between a city away out in the interior and the central telegraph office in the capital, so it is the work of the nerve fibres to carry messages between

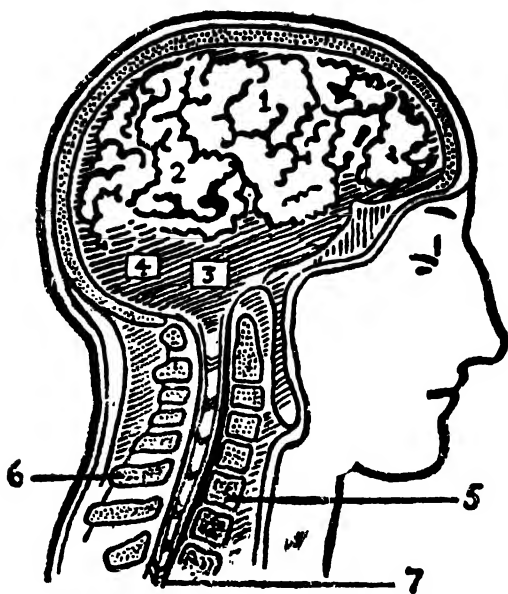
the brain or spinal cord and the other parts of the body.

Functions of the Brain and the Spinal Cord

The brain and the spinal cord are like the governor of a province, who resides in his office in the capital. The nerves that extend out to every part of the body are like the telegraph wires that connect the governor's office with every important city in the provinces.

Messages come in over the telegraph wire from a city to the governor, telling him what has happened. He at once sends back a message over the wire commanding the local official what to do.

The brain not only receives the messages from the different parts of the body, but it sends out messages and causes the muscles to move, or makes the heart beat faster or slower. If we wish to walk, the brain orders the muscles of the legs to move the legs. If the message that comes from the eye to the brain tells it that there is a snake close to the body, the brain will send a message to the muscles and cause them to move the body very quickly. If the nerve from the finger carries a message to the brain and spinal cord, announcing that the finger is touching something hot, the brain and spinal cord instantly command the muscles of the arm to move the finger away. If we had no nerves we could not know that the finger was being burned, and we might not move the finger away before it was burned up.



1, and 2 Cerebrum 3 Medulla Oblongata 4. Cerebellum
5, and 6. Vertebrae 7. Spinal Cord

The brain thinks and feels and remembers. It loves and hates. It decides what we shall do and say. It governs every member of the body. When the nerve fibres that connect the brain with any part of the body are cut in two or injured that part is paralysed; that is, it cannot move, and does not have any feeling in it. People who drink alcohol, or who are immoral and contract syphilis, sometimes have half of the body paralysed, because the poison of alcohol and the poison of syphilis both destroy the nerve fibres.

Hygiene of the Nervous System

The whole body must be well and strong in order for the nervous system to be healthy. Good food, clean air, sleep, and proper exercise of the mind and body, are necessary in order to keep the nervous system in good condition.

The mind has much to do with the health of the nervous system and the health of the whole body. There are many evidences of this with which all are familiar; for example, when one is embarrassed or ashamed, the nerves cause the blood-vessels in the skin to dilate, and the skin of the face becomes flushed. Excitement quickens the heart-beat. Sometimes when one is very frightened, the nerves cause the sweat glands to produce perspiration when the body is not hot. A great shock to the mind may cause fainting. When one is sad or angry, he may go without eating for several days, and yet not feel hungry. When one is happy, he has a good appetite, and every part of the body does its work well. All this shows the influence of the mind upon the body. In order to have a healthy nervous system and a healthy body, one should think right thoughts—pure thoughts. By thinking evil thoughts the mind may become so diseased that insanity results.

Man's supremacy over all the lower animals is due to the fact that he has a mind. Since he has a mind, he can distinguish between right and wrong. Man is the only creature that has a mind; and for that reason he is the only creature that can worship and serve God. When God created man and caused him to have a mind, He purposed that man's mind should be kept busy thinking good, ennobling thoughts. He purposed that man should study and store his mind with every kind of useful knowledge. All should strive to follow God's plan and

exercise the mind in a proper way. Control your mind. Do not allow angry thoughts, for anger injures the mind just as a poison injures the body. "He that ruleth himself, is greater than he that taketh a city." The best plan for developing the mind and storing it with true learning and wisdom, is to begin by thinking about the Creator of the world, God, and to think the thoughts He would have us think. In order to do this, one must read God's thoughts as He has recorded them in the Bible.

Habits

The nervous system of an infant may be compared to a new garment that has never been folded and has no creases. When the garment has been folded a few times, creases develop, and after that it is easy to fold it along the lines of the old creases, but quite difficult to fold it in a way that new creases must be formed. It is so with the child. As soon as it begins to think and speak and act, its brain forms habits, just as the garment when frequently folded in the same way forms creases. From that time on it is easy for the child to think, speak and act in the way it has become accustomed to think, speak and act, and difficult for it to make any change.

The first time we attempt a new movement, for example playing a musical instrument, the entire attention of the mind is required; but when we have done the same thing, over and over again, a habit is formed, and we do not have to think as we do it. For example, one who has learned to play a musical instrument can be looking at, and thinking of something else at the same time that he is making music.

Almost everything we do, whether good or bad, becomes a habit. One can train the mind so that only good habits will be formed, and he can by thinking over and over again evil thoughts, and saying and doing over and over again evil things, form bad habits. Most of our habits are fixed before we reach the age of twenty-five. How important then it is that children and youth should be properly trained! They should be taught to think of things that are true, and honest, and just, and pure, and of good report. In this way a noble character will be developed. If good mental and physical habits are formed, disease will the more easily be avoided, and a long, useful life will be more certain of attainment.

CHAPTER 13

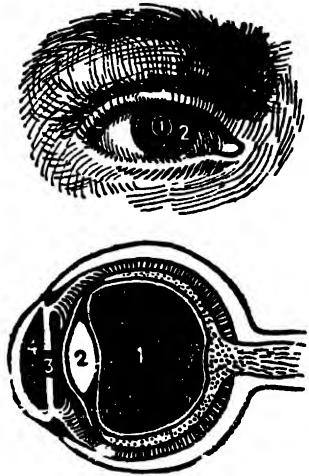
The Eye and the Ear

The eye is a wonderful organ. It makes a picture of everything it sees, and the nerves from the eye tell the brain about these pictures. The eyes are very easily injured, and for this reason they are well protected by their location in two cavities in the front of the skull, and by the eyelids, eyelashes, and eyebrows.

The condition of no class of sufferers is more pitiable than that of the blind. They cannot go about as they wish, or do the things they wish to do. There are very few things they can do to earn a living, and for this reason many become beggars. They cannot see any of the beautiful things in the world, but their whole life long they are, as it were, shut up in a room as dark as the blackest night. They cannot see to read, and so have the greatest difficulty in securing an education. How important it is, then, that all know how to protect the eyes lest they become injured and blind.

Hygiene of the Eye

The eyes of the infant should be well cared for. Just as soon as it is born, wash the eyes with boracic acid. (See prescription No. 1 in Chapter 50. See also instructions in Chapter 23.) When the infant is asleep, use a piece of mosquito net to cover it so that flies cannot alight on the eyes and infect them. During the hot weather, wherever one



1. Pupil 2 Iris

1. Vitreous Humor 2. Lens 3. Pupil

4. Anterior Chamber

goes, many children are seen with eyes that are diseased and full of pus. Flies alight on these diseased eyes, and not only eat the foul pus, but get it on their feet. They fly away, and alight on the eyes of a child who does not have eye-disease. When they alight the pus on their feet gets into the eyes of the child, and very soon this child also has sore eyes. In this way eye-diseases are very quickly spread from one child to twenty or fifty or a hundred other children.

The school-room where the children study should be well lighted. The children should be provided with seats low enough so that their feet will rest on the floor; and the desk or table should be low, so that when the book is lying on the table and the child is sitting erect, the print will be a foot from the eyes. The child should be provided with study books that have large, clear type. After a child has recovered from measles, scarlet fever, or small-pox, it should not be allowed to go to school for several weeks, because these diseases injure and weaken the eyes.

It is a common thing to see persons use the finger or a soiled cloth to rub the eyes when something gets into it. This is a certain way to infect the eyes; for the fingers come in contact with all sorts of unclean things, and the cloth is used to wipe the nose, and for many other unclean uses, so that it always has pus-producing germs on it. When pus-producing germs get into the eye, the eye soon begins to smart and pain; it becomes red, and waters; and in a short time pus is formed. In the morning the corners of the eye have large masses of pus in them. For this reason the eye should never be wiped with any soiled cloth or soiled handkerchief. If a particle of dust or dirt gets into the eye, remove it by dropping in a few drops of boracic acid solution. (See prescription No. 1 in Chapter 50.) In case you cannot secure boracic acid, it were better to drop clean water into the eye to remove a foreign particle rather than to use a handkerchief or a cloth to wipe the eye.

The eyes are also greatly injured by the use of tobacco and alcohol. You have no doubt noticed that the wine-drinker's eyes are always red, and that the tobacco-smoker's eyes have a yellow appearance. Those who use either tobacco or alcohol often have very poor vision.

In order to protect the eyes from injury and disease, it is necessary, in addition to what has already been mentioned, to give heed to the following:—

1. Never read, or do any close work such as embroidery, in a poorly lighted place.

2. When reading, do not sit facing the light; it is better to sit so that the light will shine on the book from behind, over the shoulder.

3. When reading, or doing any work that requires close attention, it is well to rest the eyes occasionally, either by closing them for a few seconds, or else by looking out of the window at the distant sky, or the green trees, or the grass for a few minutes.

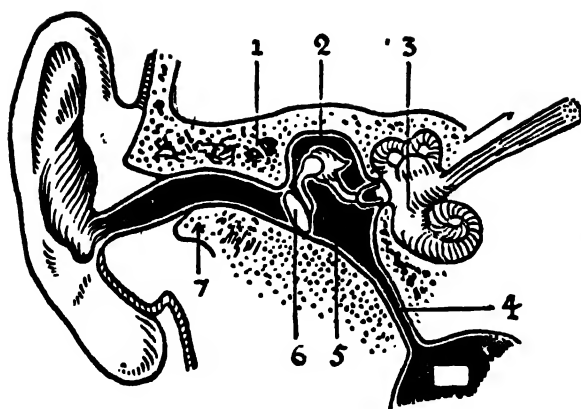
4. When a particle of dust or any foreign particle gets into the eye, do not rub the eye, but remove the substance by washing the eye with boracic acid solution. If there is no boracic acid solution at hand, clean boiled water may be used.

5. Avoid using towels, soap, washpans, or washcloths that are being used by other people. Those who have used these articles may have had "sore eyes," and by using them you will almost certainly contract some eye disease.

6. Smoke is very injurious to the eyes. If the stove where the food is being prepared is not fitted with a flue, the house becomes filled with the irritating smoke. When this is repeated three times a day, day after day, it injures the eyes of every member of the family. At a very small cost flues can be built that will conduct the smoke out of the room and prevent this discomfort and injury.

Hygiene of the Ear

By examining the picture of the ear shown in this chapter, it will be seen that the ear is divided into three parts. The part that we see on the outside of the head simply forms a funnel-like arrangement to pass the sound on into the middle and the internal ear. The middle ear is connected with the throat by a small tube (eustachian tube). If this little tube becomes closed, deafness results. When one has a cold, and there is mucus in the nose and throat, the lining of the throat and of the eustachian tube becomes swollen and stops up the tube. This is one of the causes of deafness.



1. Bone 2 Malleus 3. Vestibule and Cochlea 4. Eustachian Tube 5. Middle Ear 6 Tympanic Membrane 7. Bone

When the eustachian tube becomes infected, the middle ear also becomes infected. When pus is formed and fills the middle ear, it causes the ear to ache. So much pus may be fo-

med that it presses on the ear drum (tympanic membrane) and tears an opening in it; then the pus can be seen coming out of the ear. The treatment for this is given in Chapter 44.

The following are the important points to be observed in the care of the ear:—

1. The wax in the ear serves an important purpose. This wax is very bitter, and on account of this no insect will enter the ear unless it is one that accidentally flies in. This wax should not be scraped or dug out. If the ear wax should become hardened and interfere with the hearing, then remove it in the manner mentioned in Chapter 44. The hairs that grow in the ear also serve the useful purpose of keeping out insects and dust. Do not allow the barber to remove these hairs.

2. If a small insect gets into the ear, the best way to get rid of it is to drop into the ear a few drops of warm sesame oil or some other clean oil. This will cause the insect to come out, or will kill it, and then one can remove it by syringing with warm water.

3. Avoid violent blowing of the nose; this may cause the germs in the nose and throat to be forced through the eustachian tube into the middle ear, and cause deafness.

4. Never strike a child on the ears. By so doing one may injure the ear, and cause deafness.

CHAPTER 14

Reproduction and Sexual Hygiene

(With Special Reference to the Male)

The reason that reproduction and sexual hygiene are discussed in this book is because ignorance of these subjects lies at the root of some of the most serious diseases and the most degrading vices to which human beings are subject.

When a boy reaches the age of fifteen or sixteen, changes take place in his body. He has arrived at puberty. When he has reached this age, he has not yet really reached manhood; for, as a rule, it requires at least another eight years to develop the young man to the full stature of manhood; so it is not before a man is twenty-four or twenty-five years old that he has the physical and mental powers that fit him to marry and become a parent.

At the time of puberty, the changes noticed in a boy are that hair begins to grow on the face, in the axilla (arm-pits), and over the pelvic region. The voice changes. The external genitals increase in size. The testicles become able to produce semen that can cause impregnation.

It is at this time that the boy is in danger of forming bad habits if he is not properly taught and cared for by his parents and teachers. The boy should be out of doors much, either working or playing. He should help his father and mother in their work. He should not be allowed to associate with evil companions. It is of the highest importance that moral training should not be neglected, but that he should be led to a knowledge of, and to the worship of the true God, and should be encouraged to read daily that best of all books, the Bible. There is no instruction that can compare with that of the Bible in helping a young man to form right habits.

Anatomy and Physiology of the Male Genital Organs

The external genitals of the human male consist of the penis and scrotum. Within the scrotum are the two testicles

About one inch of the end of the penis is blunt-shaped, and is called the glans. The skin that covers this blunt end is loose, and can be retracted. This skin is called the prepuce, or foreskin. If the prepuce cannot be drawn back to expose the glans, it is abnormal, and should be cared for by a competent physician. Under the prepuce a thick white secretion collects; and if this is not washed off frequently, it becomes foul-smelling, and causes itching. This itching, caused by not keeping the end of the penis clean, is a very common cause of masturbation in boys.

The two testicles are inside the sac called the scrotum. They produce the spermatozoa. These spermatozoa are so small that they cannot be seen without the use of a microscope. At the time of a seminal emission, these spermatozoa pass along a duct until they reach the urethra, and from there they pass on out of the penis. It is these spermatozoa that are deposited in the vagina of the female at the time of sexual intercourse. One of them joins with the ovum that has been produced in the female. As soon as a spermatozoa unites with the ovum, the ovum begins to grow, and in two hundred and eighty days becomes a fully developed child.

Seminal Emissions

There are two glands (prostate and Cowper's gland) that are connected with the urethra. After puberty, these glands continually produce more or less of a thick, whitish fluid. In a young man who is healthy and unmarried, and is not an adulterer, there is normally an emission of the fluid from these glands every ten or fifteen days. In some young men it may be only once a month or once every two or three months. The emissions most often occur at night, when the young man is asleep, and may be accompanied by erotic dreams; so they are often called "nocturnal emissions." These emissions are not abnormal, and the young man should not be frightened by them. By no means pay any attention to the patent medicine advertisements telling you that these emissions cause a loss of sexual power, and so on. If they occur oftener than once in ten days, and if there is headache and lassitude on the day following, it is abnormal, and a competent physician should be consulted. The emissions that have just been mentioned, occur in the case of young

men who live clean lives, and who do not read erotic books or look at lewd pictures or think lewd thoughts. Masturbation, and reading lewd books cause "Nocturnal emissions" that lead to loss of strength, and do great harm.

Continence

Continence, in the case of an unmarried man, means to abstain entirely from having sexual intercourse. Continence, in the case of a married man, means to be temperate in the indulgence of his sexual desires. Every young man should lead a continent life. Every healthy young man will experience strong sexual desire at times before he is married; but if he wishes to keep strong and healthy, and wishes to become a useful, happy man, and to have, sometime, a good wife and healthy children, he must live a continent life. To do so requires an exercise of the will-power. Many a young man allows his sexual passions to control him; and he either masturbates or has illicit intercourse with women. In either case, he is debasing himself.

Masturbation

Masturbation (self-abuse) is a vicious habit. It is often learned while the child is young. Sometimes the one who is caring for a boy baby, will amuse the child by handling its external genital organ. Later, the child will learn to handle this part of his body, and he will thus become a masturbator. The custom of carrying children in a sling on the back, or carrying them astride the hip, produces a constant rubbing of the child's genital organs, and by keeping these organs constantly irritated leads the child to masturbate. Boys often learn this filthy habit from their playmates at school. In other cases, there is a long or adherent foreskin. This irritates the end of the penis, and causes it to itch. The child rubs the organ, and in this way may learn to be a masturbator. For this reason, whenever a child is noticed rubbing or scratching about the region of the external genitals, it will generally be found that he should be taken to a physician and should be circumcised.

Every time a young man commits masturbation he throws away some of his life and strength, just as verily as though he cut open one of his blood-vessels and allowed

several ounces of blood to flow out. Anyone knows that if he should cut open a blood-vessel and allow several ounces of blood to flow out of the body every day or two, great injury would thus be done to the body, and life itself would be cut short. But such an injury is no greater than that caused by masturbation. Not only this, but a young man who masturbates becomes debased morally. He does not respect himself, and will never become a useful man, unless he repents and ceases to masturbate. In curing a boy of masturbation, it is usually necessary in the first place to circumcise him.

Illicit Intercourse with Women

Illicit sexual intercourse is one of the vilest and most harmful things that men can do. In the first place it is one of the lowest moral crimes. It debases both the man and the woman, so that they lower themselves to the standard of the beasts. Illicit sexual intercourse is such a vile crime that it merits the severest punishment; and a part of this punishment is the venereal diseases that are contracted by those who have illicit intercourse. One indulgence in illicit sexual intercourse often results in contracting a venereal disease that will cause years of suffering. These diseases are chancre, gonorrhœa, and syphilis. They will be discussed in Chapter 41.

With reference to illicit sexual intercourse, the Lord in heaven exhorts and warns men. He says: "Be not deceived; God is not mocked: for whatsoever a man soweth, that shall he also reap. For he that soweth to his flesh shall of the flesh reap corruption." Gal. 6: 7, 8.

Speaking of harlots, the Bible says: "She hath cast down many wounded; yea, many strong men have been slain by her. Her house is the way to hell, going down to the chambers of death." Prov. 7: 26, 27.

One always thinks immoral thoughts before he does immoral acts; and there is abundant evidence to show that the debasing influence of immoral thoughts is as great as the doing of immoral acts; and so God warns men: "Ye have heard that it was said by them of old time, Thou shalt not commit adultery; but I say unto you, That whosoever looketh on a woman to lust after her hath committed adultery with her already in his heart." Matt. 5: 27, 28.

How to Live Continently

For a man to refrain from sexual intercourse until he is married, is not difficult; neither is it injurious to the health, as some believe. No man desires for his wife a woman who has already had sexual intercourse with other men. Every man wishes to marry a virgin, a clean, pure woman. If the woman should remain continent, there is just as much reason that the man should remain continent. There is but one right standard for men and women.

Not only should men control their sexual passions before marriage, but after marriage as well. The purpose of sexual intercourse is to beget children. And so a man should not give way to his sexual desires and have sexual intercourse every night or two just because he is married. Sexual intercourse, even in the case of men who can support a large family, should not be indulged in more than once or twice a month, at the most. (See Chapter 23.) Sexual intercourse should not be indulged in during menstruation or pregnancy and not until at least three months after childbirth. Sexual intercourse during pregnancy may produce miscarriage; and even if it does not produce a miscarriage, it is a great drain on the nervous energy of the woman. It injures her health and also the health of the child in her uterus.

In the case of the unmarried man, or in the case of a married man who at times has very strong sexual desires, there are methods that can be used that will help in repressing the sexual passions. The man who does very little muscular or brain work, but eats an abundance of food, is sure to have such strong sexual passions that he is led to commit adultery or practise masturbation. In order to live a continent life and control the sexual passions, one should not eat highly spiced foods, and should use but very little meat. It were better as a rule to abstain entirely from the eating of meat. A diet of fruits, grains, nuts, and vegetables, is the best diet for any man who wishes to live a clean, pure life.

It is a matter of common observation that a brothel is always found in the same building with, or close by, a liquor shop. The reason for this is that one of the first effects of alcohol-drinking is to inflame the sexual passions, and so prostitutes are always found where men drink alcohol. Tobacco has

almost the same influence as alcohol though not so marked. Tea and coffee also excite the nerves that control the sex organs. Total abstinence from the use of alcohol and tobacco, is absolutely necessary in order to live a continent life. The reading of lewd books, looking at lewd pictures, and the telling of lewd stories all serve to stir up an unnatural sexual passion.

The bowels should move at least once a day; because if they do not move daily, the poisons from the accumulated fæces stimulate the nerves that control the sexual organs. (See Chapter 29 for instruction with reference to how to cause the bowels to move at least once every day.)

Drink an abundance of water, so that the urine will be mild and not stimulate the bladder and urethra. Go to bed not later than 9 p. m., and rise early. Do at least two hours of muscular work daily, and work energetically enough to produce a perspiration.

Keep the body clean by frequent bathing. It is well to wash the sexual organs daily. This should by all means be done by every man who has a prepuce that is long and does not leave the glans exposed. When the sexual passions are excited, they can be easily repressed at any time by exercising vigorously or by a cool bath. If it is not convenient to bathe the whole body, simply bathing the sexual organs for several minutes in cold water will be sufficient.

The matter of controlling the thoughts has already been mentioned. Too much emphasis cannot be placed upon this. "As a man thinketh in his heart, so is he." The man who thinks about sexual matters, and who has unclean thoughts every time he sees a woman, is sure to put his thoughts into action sooner or later. He is weakening his will-power, so that he cannot resist temptation. Therefore keep the mind busy studying, or thinking pure clean thoughts. Have an ambition to be a useful man in the world. Study hard, work hard. By keeping busy, the mind will have no time to think of sex matters, and will become stronger and the whole body will be more robust. Remember the old proverb, "An idle man's brain is the devil's workshop."

Sexual excess is a sin that is increasing to an alarming extent, and is blasting the usefulness of many a promising young man. Perversion of the natural use of the reproductive organs shortens life. It is burning the candle at both ends.

CHAPTER 15

Reproduction and Sexual Hygiene

(With Special Reference to the Female)

While the male and the female both share in the wonderful work of reproducing their kind, yet by far the greater part of the burden falls to the woman. It is in the mother's body, protected as well as it possibly can be, that the life of every child begins; and it is in the mother's womb that the child is nourished for the first two hundred and eighty days of its existence. Not only for the first two hundred and eighty days of its existence, but for the first year and a half after its birth, the child is generally entirely dependent upon its mother for nourishment and care. The child, even after it has ceased to secure nourishment from its mother's breast, is still under her constant care for a number of years.

Thus it is evident that the mother, as a rule, has much more to do with shaping the future of the child than has its father. Since the greater share of the work of bearing the child, of nourishing and caring for it, is hers, should this not lead men to look upon women with a higher regard than many do at present? And since she has so large a part in the moulding of the child, physically, mentally, and morally, should it not be a subject of the first importance to see that she has every opportunity to secure a good education that will fit her for this most important work, and that her life be not made bitter with drudgery, and that the burden of motherhood shall by no means be laid upon her until she has grown to the full stature of womanhood?

Anatomy and Physiology of the Female Sexual Organs

The ovary and the uterus are the two important sexual organs of the female. The ovaries are two small round bodies. They are located in the lower part of the abdomen. Their position is shown in the *manikin* (frontispiece). The

ovaries produce the ova. The ova are so small that if one hundred and twenty-five of them were placed side by side, they would barely cover a space an inch wide.

The oviduct is a tube four or five inches long that is attached to the uterus at one end; the other end reaches to the ovary. The ovum passes along this tube from the ovary to the uterus.

The uterus is of the shape shown in the manikin. The uterus of a virgin is about two and three-quarter inches long by one and three-quarter inches wide. The lower end of it projects down into the vagina.

The external opening of the vagina is almost closed by a thin membrane, the hymen. The hymen is usually ruptured at the time of the first sexual intercourse. There may be no opening in the hymen, or some diseased condition may close the opening. In such a case mucus will collect within the vagina and cause pain and swelling. The child so afflicted should be taken to a physician for treatment.

Puberty and Menstruation

A girl reaches the age of puberty when she is from nine to fifteen years old. At this time changes take place in her body which are to fit her to bear children. Hair begins to grow in the axilla (arm-pits) and about the pubis; the breasts begin to develop, the whole body takes on a more rapid growth, and the girl begins to menstruate.

Menstruation occurs usually every twenty-eight days, and lasts ordinarily for five days. At the time of menstruation there is a partial sloughing or throwing off of the lining of the uterus. The menstrual discharge is composed chiefly of blood and mucus. Woman as a rule do not menstruate during pregnancy and during the time the child is nursing. Menstruation ceases about the forty-fifth year of life. After it ceases, a woman can no longer bear children.

Some girls do not begin to menstruate even though they have reached the proper age. The treatment for this will be described in chapter 42.

Menstruation may begin as early as the ninth or tenth year of a girl's life. As soon as menstruation begins, it is possible for a girl to be impregnated and to bear a child; but it is a most unnatural thing that a child should be married

and begin to bear children at such an early age. At the age of ten, or even at the age of sixteen or seventeen, the girl is yet a child; her mind and body have not fully developed. If she becomes pregnant, her body will never grow to its full stature; but she will always be a dwarf. Her body not having developed, she cannot give birth to a fully developed child. No woman should marry and begin to bear children before she is twenty years of age, and it were better far if she should not become pregnant before she is twenty-one or twenty-two years old. Child marriages are to be condemned from a physical standpoint. It is a custom that has connected with it many things that from a moral standpoint are very debasing.

Hygiene

Every mother should be intelligent with reference to the function and care of the reproductive organs. She should in a proper way, instruct her daughters about sexual matters, as far as they can understand. By teaching the daughter these things, the child's health and morals will be safeguarded. Many children grow up in ignorance of these things, and get their first information from some immoral playmate; and as a result they often learn evil habits.

The external genitals of female children, even the very youngest, should be kept clean by frequent bathing, lest they become foul, and the itching that results lead to rubbing of the parts. This rubbing may cause the child to learn to masturbate.

Allowing the child to go about with the external genitals exposed is a most debasing custom, and the people of no country can reach a high standard of morality who allow such a custom to be followed. Many years ago Japan passed a law, forbidding parents to clothe their children in a way that would expose the genital organs.

Male and female children should not be allowed to sleep together in the same bed. Even children a few years old quickly learn evil habits if the two sexes sleep in the same bed.

From earliest childhood the child should not be allowed to handle or rub its external genital organs, for in this way even small girls quickly learn to masturbate.

When a girl reaches the age of puberty and begins to menstruate, her mother should explain to her that at the time of menstruation colds are easily contracted, and for this reason she should be careful of her health. A girl at about this age should not be made to work too hard, and should be allowed nine or ten hours of sleep every night.

At the time of menstruation pieces of clean cloth, or clean cotton, wrapped in a piece of gauze, should be used to absorb the menstrual discharge. To use the soiled pieces of cloth and coarse brown paper that are used by many women at this time, is very unsanitary, and often causes burning and itching and pustules on the external genitals, and may even lead to disease of the internal organs.

During the few days of menstruation frequent bathing is necessary. If warm water is used, and the skin is thoroughly dried by brisk rubbing with a towel, there is no danger of taking cold. No woman should neglect to keep her body clean during menstruation.



CHAPTER 16

The Use of Intoxicating Liquor

Some years ago a company of patriotic Frenchmen noticed that the number of people in France, instead of increasing from year to year, was actually decreasing. They decided to investigate and find out why it was that more people died in France every year than were born. When they thoroughly investigated the matter, they found that while there were several causes, yet the greatest cause of all was wine-drinking. In the report made by these men, among other things they said:—

“Wine-drinking causes a man to lose his natural affections and forget his obligations as a son, or a husband, or a father. It causes him to be inefficient in his work, and leads him to steal and rob and become an habitual law-breaker. Not only this, but wine-drinking is the prime cause of many serious diseases, such as paralysis, inflammation of the stomach, liver, and kidneys, tuberculosis, pneumonia, insanity, and also causes a diseased condition of the blood-vessels. Not only is wine-drinking a cause of these diseases, but it is known by physicians that when those who do not drink wine contract these diseases, there is hope of a cure; but for a wine-drinker, there is very little hope of recovery.”

From the report given above, it is evident that wine-drinking can only harm the body; it cannot benefit it. Gladstone, a former Prime Minister of England, said: “The combined harm of the three great scourges,—war, famine, and pestilence,—is not as terrible as that of wine-drinking.”

Different Kinds of Intoxicating Liquors

Alcohol is not a product found in nature. It is a product of decomposition. It can be made from wheat, corn, oats, barley, rice, grapes, and palm juice. The yeast used in fermenting wine, changes the starch and sugar of the grains and fruits, into alcohol. Every class and kind of wine,

whether it be called wine, whiskey, brandy, gin, beer, or toddy, all contain alcohol. Some contain only 5 or 10 ounces of alcohol in each 100 ounces; others contain as much as 50 to 70 ounces of alcohol in each 100 ounces.

Alcohol is a powerful poison. It does not require very much pure alcohol to kill a man almost instantly. If the man who drinks alcohol is told that he is drinking something poisonous, he will not believe you, but there are many ways to prove that this is true. If an earthworm or a fish is placed in a vessel that contains water in which there is but one part of alcohol to one hundred parts of water, it will quickly die. If the white of an egg is dropped into alcohol it instantly curdles and becomes white and tough,—just the same as though it were dropped into boiling water or on a hot iron. When it is recalled that the stomach, heart, liver, kidneys, and muscles are all made of the same kind of material as the white of an egg, it is evident that alcohol must affect them in much the same way.

Alcohol is Not a Food

Is alcohol a food? In answering this question it is necessary to define the word "food." Food is any substance which, when taken into the body, does not harm the body in any way, but imparts to it heat, energy, and material for growth and repair. Alcohol is not a food; for it enters the alimentary canal and is not digested or changed in any way; when it enters the blood it is still alcohol. It is also known that alcohol shrivels up any part of the body with which it comes in contact, and does not impart strength to the body. Moreover, when the stomach is healthy, and ordinary food is eaten, the stomach receives it; but when alcohol is drunk for the first time, the stomach usually vomits it up. The stomach recognizes alcohol as an enemy, and so tries to get rid of it as quickly as possible. Foods cause the body to grow; but alcohol stops or else retards growth. Children who are given wine to drink, do not attain to the bodily stature they would have reached had they not used wine.

Alcohol Cannot Give Strength to the Muscles

Athletes and those who are training to compete in any feats of strength and endurance, abstain entirely from the



This plate shows the interior of a healthy stomach. The lining membrane lies in folds and depressions, and is uniform in appearance and of a healthy colour.



In this plate are shown the local patches of congestion and erosion caused by alcohol. Note the general unhealthy tinge of the whole interior as compared with the other plate.

use of alcohol. Physicians in every part of the world all state that alcohol weakens the muscles. The reason many think that a drink of wine increases their strength, is because the wine benumbs the brain so that one is self-deceived as to his strength after drinking wine. It has been proven many, many times during war that soldiers who drank wine or alcohol in the morning could not march as far during the day as the soldiers who did not drink any.

Influence of Alcohol on the Mind

The man who drinks alcohol, believes that it helps him to think. The facts of the case are that for the first ten or more minutes after a small quantity is drunk, the mind seems to be more active and thoughts flow freely; but it is to be noted that the thoughts and words are confused and unwise, because a man who ordinarily is very upright in conduct and discreet in word and act, after drinking freely of alcohol manifests an entirely different disposition. The man of few words now becomes talkative, and has lost a'l sense of the fitness of words, and often uses obscene language and commits acts that are beyond the bounds of reason and propriety. After the first few minutes, the one who has drunk freely of alcohol begins to have a heavy feeling in the head. He becomes quiet, and desires to lie down and sleep. This is due to the alcohol stupefying his brain.

A physician made the following test of the effect of wine on the work of the brain: for a period of twelve days he drank three ounces of wine daily. On the twelfth day his mental power was far inferior to what it was previously. Formerly he could in one minute's time add a column of forty figures; but after having taken three ounces of wine daily for twelve days, he found that he could add a column of only twenty-four figures in one minute. A verse that required only two minutes for him to memorize before using the wine, required six minutes to memorize after the twelve days of using wine. One of the clearest evidences that the drinking of alcohol seriously injures the brain, is the fact that it is one of the commonest causes of insanity.

Man is endowed with a conscience that enables him to distinguish between right and wrong. The influence of alcohol is to destroy this power. Almost all of the crimes

that men commit, that lead to imprisonment, such as fighting, murder, rape, etc., are committed while they are under the influence of alcohol. According to the record of the criminal courts, a large number of those who are punished with capital punishment have committed crime when they were under the influence of alcohol.

Alcohol-Drinking Causes Disease

✓ (The man who drinks a small quantity of alcohol daily may not think that he is being harmed very much; but if he could look inside of his liver, kidneys, lungs, stomach and blood-vessels, he would see that all of these organs were being gradually injured.) Normally the body has the power to destroy disease-germs that may chance to find entrance. Alcohol destroys this power of resisting disease, and so injures the organs of the body that the drinker easily contracts pneumonia, consumption, Bright's disease, cholera, plague, or dysentery. In fact, the alcohol-drinker easily contracts any disease; and when he becomes sick, he has far less chance of recovery than the one who uses none.

The evil influence and harmfulness of alcohol drinking is not only manifested in the one who drinks, but it is transmitted to his offspring. In asylums for the care of feeble-minded children, it is found that 41 out of every 100 such children are the offspring of parents who drank alcohol.

Alcohol shortens a Man's Life

Life-insurance companies in all countries have found that people who use alcohol do not live to be as old as those who do not use it. These life-insurance companies state that there is twice as much sickness among alcohol-drinkers as among the same number of abstainers, and that there are half as many more deaths among alcohol drinkers as among the same number of men who do not use alcohol. For example, if there were a company of one thousand men who used alcohol, and another company of one thousand men who used no alcohol there would be three deaths among the alcohol drinkers to every two deaths among the abstainers. This is the statement of an absolute fact based upon the reports of all the large life-insurance companies in the world.

From this it is evident that the man who uses alcohol is cutting off from four to ten years of his life.

Is Alcohol a Useful Medicine?

(Until recent years, physicians as a rule gave alcohol to the sick thinking it would help in curing disease; but to-day physicians use very little alcohol as an internal medicine. It is now known that alcohol does not cure disease; on the contrary, it aggravates most diseases.) Practically the only place and the only way that alcohol can serve as a useful medicine, is to rub it on the skin in the treatment of certain diseases. The newspapers frequently contain glowing advertisements of some brand of wine that aids digestion and energizes the system. Such advertisements are gross misrepresentations. The safe rule for a sick person to follow is to avoid using any kind of intoxicating liquor.

How to Break off the Use of Alcohol

The chief thing that is necessary is that there be first a firm resolve to overcome the evil habit. If a man is willing to seek help from the God in heaven, He can impart strength that will enable him to overcome the craving for alcohol.

It is now known that diet has much to do with creating a desire for intoxicating drinks. For this reason, one who is trying to overcome the liquor habit, should abstain from the use of all kinds of meats and spiced foods. It is absolutely necessary, in order to overcome the appetite for wine, or alcohol, that one cease using tobacco; for in almost every instance the use of tobacco leads to the use of alcohol. Eat an abundance of fresh fruits, and drink an abundance of pure water. Do not drink tea or coffee. Take a hot bath daily; and after getting out of the hot water, at once dash cold water over the whole body, and dry the skin quickly. Spend as much time as possible out in the open air. Exercise daily to the point of perspiring freely. Do not keep any alcohol in the house and do not enter a liquor shop. If one is really desirous of stopping the use of alcohol, following the above-mentioned methods will surely enable him to do so.



The Slavery of Tobacco

CHAPTER 17

Tobacco-Using

Many kinds of plants grow in the world. Some are useful as food for man; some are useful as food for animals; some are useful in making clothing and various utensils for man; but there are some for which no legitimate use can be found other than using them as poisons to destroy harmful insects and animals. To this latter class belongs the tobacco plant. Neither the cat, dog, horse, cow, nor any other beast can be induced to breathe tobacco smoke; man is the only animal that has formed this peculiar habit.

Tobacco is not an article that the body must have in order to maintain health; for it is found that people who do not use it have better health, and are stronger and live longer, than those who do use it. When tobacco-using was first introduced into Western countries, all the rulers recognized that it was a harmful poison, and they enacted laws forbidding its use, just as China has done with reference to opium. Yet many of the rulers themselves use it now, and so the laws are not enforced, or else have been repealed.

Tobacco is a Poison

In every 100 ounces of dried tobacco leaves, there are two ounces of a deadly poison called *nicotine*. Nicotine is a much more deadly poison than arsenic. It is so deadly that one drop of it placed on the skin of a rabbit will produce death. Two drops on the tongue of a cat or dog will prove fatal. Fatal poisonings have occurred in man from swallowing tobacco. In China, a common method of committing suicide is to drink the water out of a *kugqa*, which contains nicotine.

Usually, the first time any one smokes tobacco, he becomes very sick. These facts fully demonstrate that tobacco is a very harmful poison.

Tobacco poisons the body, no matter in what form or in what manner it is used. Some people think that the ciga-

rette is less harmful than the pipe or cigar; some think that the water-pipe is less harmful than the common dry pipe. But tobacco is harmful, no matter how it is used. The more tobacco used, the more harmful it is. In addition to smoking tobacco, some chew it; some use it as a snuff in the nose. These ways of using it are fully as harmful as smoking. A large number of those who smoke either the pipe or cigarette, inhale the smoke,—that is they draw the smoke down into the lungs and then exhale it through the nose. When smoked in this way, more poison enters the blood than when tobacco is used in any other way.

Why Do People Use Tobacco?

Tobacco is a habit-forming poison of the same class as opium and cocaine. The first time it is used, the user is usually made sick; the second time it is used, the disagreeable effects are less noticed; and finally after using it several times, the user feels only pleasing effects; and the longer he uses it the more difficulty he finds in any effort to stop its use. Tobacco benumbs the brain and nerves. When a man is tired or worried, he smokes, and at once feels much rested. The facts are that he really does not feel better, but rather that he does not feel at all, because the tobacco has benumbed his brain and nerves, so he no longer feels the pain and discomfort of the tiredness or worry. The pain and discomfort are still there, but they are not felt.

Why Is it That Tobacco Users Do Not All Quickly Die?

Were it not that some of the poison is burned while it is being smoked, tobacco-users would all die very quickly. By no means all of the poison is burned, however. A large amount of it (from 30% to 95%) remains in the smoke and enters the blood. In time, the body becomes accustomed to the poison, just as it can become accustomed in a measure to any harmful thing. For example, the fingers of those who unreel the silk from the cocoon become so accustomed to hot water that they can put their fingers into boiling hot water. But while the body may become somewhat accustomed to a harmful thing, this cannot be taken as evidence that no harm is being received.

Tobacco-Using Leads to the Drinking of Alcohol

Every tobacco-user has an inflamed nose and throat. This causes him to cough much. The lining of the nose is injured; so he does not have a keen sense of smell. The tongue is scorched by the tobacco smoke, and so ordinary food is tasteless to him. For this reason, tobacco-users demand highly seasoned foods. The tobacco smoke makes the mouth and throat dry; the highly seasoned foods eaten also burn the mouth and throat. This produces a thirst that water will not quench. There is only one thing that will quench this thirst, and that is some kind of alcoholic liquor. Thus it is that tobacco-users are very likely to become alcohol-users.

‘Tobacco Heart’

The most marked effect of the poison of tobacco is seen in its influence on the heart. There is a disease known as “tobacco heart.” All who smoke very much tobacco, have this disease. In this disease, the heart for a time beats too fast; then it will suddenly stop for a beat or two, then it will beat too slowly. When one has this kind of heart, he very quickly gets out of breath. Tobacco users always have short wine. This is the great reason why no athlete, or no one who is training to get his muscles strong, uses tobacco. Almost every young person who smokes cigarettes has “tobacco heart.” A few years ago when some American officials were examining applicants for the Naval Academy, there were 412 young men who made application to enter the Academy; but 298 of these were rejected because, through using tobacco, they had permanently injured their hearts, and other vital organs.

Tobacco Stunts the Body

The body is dependent upon food for its growth, but the food must first be well digested before it can be used as material for growth. This digesting and preparing of the food, we have already learned from Chapter 3, is done in the alimentary canal. Tobacco injures the alimentary canal, so that this canal cannot do its work of digesting food well. As a result, the body is not supplied with sufficient building material. Not only this, but the tobacco poison benumbs

the parts of the body that are growing and so checks growth. It is somewhat the same as though one should put pieces of ice about the roots of a growing plant. This would chill the roots so that the plant would stop growing; but if one did not put in too much ice, the plant would still live, although it would become a stunted plant.



The Result of Using Tobacco

Tobacco Shortens Life

A large life-insurance company in American found, among the 180,000 people insured by the company during a term of sixty years, that tobacco-users were shorter-lived than non-users. It was found for example, that for every four non-users of tobacco who died at the age of forty, there were five tobacco-users who died at the age of forty.

Surgeons find that a surgical operation from which a non-tobacco-user would quickly recover, often causes the death of a tobacco user. Some years ago the President of the United States was shot and died in a short time. The

physicians who treated him affirm that if he had not smoked so much tobacco he would have recovered.

Tobacco is a common cause of blindness. It is also a common cause of cancer of the lips, tongue, and throat.

Influence of Tobacco on the Mental Powers

One who is tired will, after smoking a short time, forget his fatigue. One who is sad will, after smoking a few minutes, forget his sorrow. It has already been explained that this is due to the benumbing influence that the tobacco poison has upon the brain and nerves. For this reason, it is found that boys and girls who smoke are slow in learning. In schools and colleges where smokers and non-smokers are in the same class, it is found that the grades of the smokers are 20% or more below those of the non-smokers. In an investigation made in ten of the largest schools in a large city in America of twenty boys who smoke, and twenty who do not smoke, in each school the following is the average of the abnormal conditions found: Among every twenty boys who smoked fourteen had some diseases; while among every twenty non-smoking boys, only one had any disease of the nervous system. Out of every twenty smokers, eighteen were dull and stupid; while among every twenty non-smokers, there would be found only one dull, stupid boy.

Worst of all, tobacco using tends to lead a boy to be a liar, a thief and a moral pervert. The boy who smokes will often lie or steal in order to get cigarettes.

How to Break Off Using Tobacco

Those who do not use tobacco should never begin its use. And in view of the harm that tobacco causes, every one who uses it and yet who desires to live a long, useful, happy life, will cease using it. The best method to stop is not to decrease gradually the amount used, but to stop abruptly. This requires strong will-power and a firm resolution. The methods outlined in this book for the help of those who desire to stop the use of alcohol are all of great value in helping to overcome the craving for tobacco. Another excellent method is to produce a free perspiration daily, in order to rid the body quickly of the tobacco-poison.

CHAPTER 18

Patent Medicines

Of the advertisements seen in the newspapers and on billboards, more are for medicines than for any other one article. Advertisements for new and wonderful "medicines" make their appearance daily. Patent medicine-sellers take advantage of the fact that most people, when they get sick, think that all they need to do to recover, is to take a few pills or a few doses of medicine. Several hundred years ago, even physicians did not understand the nature and cause of sickness; they thought that disease was due to some mysterious evil influence. Not knowing the cause, they of course did not understand the proper way to treat and cure disease. In those days, a man did not have to spend several years in a college, studying sciences, such as anatomy, physiology, etc., in order to be a doctor. All that was needed was to learn from his father or grandfather how to compound some mysterious mixtures. Sick people believed that their sickness was due to some mysterious cause, and so the more mystery there was connected with the medicine, the more efficacious it would be. Such were the ideas of the past, and, sad to say, some of these ideas still cling to many people in Asia.

It is folly for one who is sick, to buy a medicine of whose composition he knows nothing, and put that medicine into his body, concerning the structure and functions of which he knows so very little. When seriously sick, one should go to a hospital or dispensary where there is a competent physician, who has carefully studied the body and its diseases. He can advise as to what to do to cure the disease. There is an adage to the effect that "when one is sick and treats himself, he has a fool for a doctor and a fool for a patient." This adage is especially true in the case of those who use patent medicines.

The men who make the medicines that are advertised in the newspapers know that every one, at some time or

other, has a pain in the back, or a headache, or a cough; and so they use every means to frighten people, and make them think that if they have any of these symptoms, they are afflicted with some serious illness. Having frightened a person into believing that he has some serious illness, they proceed to tell about some wonderful remedy that is a sure cure for that illness.

Most of the medicines advertised in the newspapers are compounded from inexpensive materials. The medicine-maker may take four annas worth of alcohol, and add water to this, together with a little colouring matter and something to give it a flavour. The actual cost of all the ingredients, together with the bottle may not exceed eight annas, but is retailed at about six rupees a bottle.

People are deceived by the false statements made in the advertisements. They buy a bottle of some medicine. Many of the widely advertised patent medicines contain either alcohol, morphine, or cocaine. It is well known that when one begins to take any of these drugs, a habit is soon formed, so that the more he takes, the more he wants. The patent medicine seller and the quack doctor know this. They know that when a sick person has taken one bottleful, he will certainly want the second bottle: so oftentimes they will give the first bottle of medicine without charge to serve as a bait. Do not be deceived by the false statements in the advertisements. Do not put too much confidence in the testimonials of people who say they have been cured.

Some may say that they really have been cured by a medicine advertised in a newspaper. In that case, it is very probable that they would have recovered more quickly if no medicine had been taken. In the investigations made in Europe and America during the past few years, it has been found that many children and grown people have been poisoned by taking patent medicines. The patent medicine user is taking almost as much risk as would a sick man who should go into a drug-store in the dark, take down from the shelf the first bottle he found, and proceed to drink the contents. Every one would call such a man very foolish for doing such a risky thing: yet every patent medicine user repeatedly takes such a risk.

CHAPTER 19

The Source of Healing Power

There are perhaps as many as ten million sick people in India to-day. Every one of these ten million wants to get well, so the question of healing the sick is one of tremendous importance.

In Order to Cure Disease the Cause Must First Be Removed

In Chapter 1 it has been stated that most diseases are due to poisonous germs that gain entrance into the body. But no matter what the cause may be, eight or nine out of ten cases of sickness are avoidable, because they have been brought on by transgressing the laws of health. Therefore the first thing to be done in any case of illness is to remove the cause.

Nature's Warnings

If there were a thorn in the flesh of the hand, and the hand had become infected, and was swollen, red, and painful, no one would be stupid enough to believe that the diseased place could be cured without first removing the thorn; yet a person who has pain in the stomach, with occasional "spitting up" of a very sour liquid, brought on by eating hastily, without chewing, large quantities of partially-cooked rice, thinks that by swallowing a few doses of medicine he can cure his stomach trouble. He should know that it is no more possible to cure his stomach disease without removing the cause, than it is to cure the pain and swelling in his hand without first removing the thorn. If the thorn is removed, the hand quickly recovers of itself, without the use of any medicine; and if the man with stomach trouble will cook his rice until it is well done, and then eat slowly, and chew each mouthful very thoroughly, his stomach will get well of itself, without his taking a single dose of medicine.

The principal stated above with reference to the sore hand and pain in the stomach is true of every disease. First remove the cause, and then the blood will do the remainder of the healing act. In every case where there is pain, swelling or fever, it is an effort that the body is making to tell you that something is the matter, and you should try to find out the cause, and remove it. When one is sick, and has a fever, the fever is a good thing; the body is causing the fever in order to burn up the poisons that are causing the disease. In case of a pain in the abdomen and diarrhœa resulting from eating some decomposed or indigestible food, it is a very easy thing to stop the pain and diarrhœa by taking a dose of opium or morphine. But how stupid it is to use such a method; for the intestines are painning you in order that you may know that there is trouble in the intestines, and that you should lie down and keep quiet, and not eat anything. The diarrhœa is simply an effort that the intestines are making to rid themselves of the spoiled or indigestible food. By taking opium (and all the medicines advertised in the newspapers for stopping pain or diarrhœa contain opium) you benumb the nerves, so that no more pain is felt, and when nerves become benumbed, the diarrhœa at once ceases. Thenceforth you continue to go about your work, and continue to eat anything that you fancy. But all the time the intestines are being injured more and more, and poisons are entering the blood from the spoiled or indigestible food in the intestines; and as soon as you cease taking the medicine that contains opium, you will find that the disease is aggravated to such an extent that you will be compelled to remain in bed, and have treatment for several weeks. In many cases the disease will be so aggravated as to cause death.

Creative Power Is the Only Healing Power

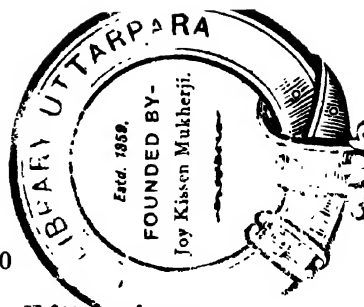
It is the natural tendency of the body to heal itself. We accidentally scrape off a small piece of skin from the hand. If the injury is small, and no disease-producing germs have gained entrance, it will only be a short time until the injured part has repaired itself, even if no medicine is used. The bone of the arm may be broken. If the arm is straightened out in such a way that the broken ends of the bone come together, and bandages are applied, in about three weeks

time the break will be entirely repaired. The broken bone repairs itself without the use of any medicine taken internally or rubbed on the outside. Is this not absolute proof that there is within our bodies a healing power? In chapter 7 it was stated that it is the blood that heals and repairs. It is the blood that carries the digested food and the oxygen to every part of the body, and it is the digested food and the oxygen that forms the repair material. The life of the body is in the blood. This life that is in the blood comes from the great Life-giver, God; for He is the One who created all things, and giveth life and breath to all.

David, a great king, said, "Bless the Lord, and forget not all His benefits: who forgiveth all thine iniquities; who healeth all thy diseases." At first thought it seems very wonderful to think that the God who created all things, and controls all things, should heal our diseases; yet how reasonable it is that He should do this; for He is the Master-Workman, who created these bodies of ours, and He knows fully every need of the body. He also knows just how to repair the body when any part of it is out of order. If you should ask why God does this, the answer is that He exercises this watching over us to manifest His love for us.

By healing the sickness of the body, God desires to lead us to depend upon Him for healing the sickness of the heart. In other words, He wants us to depend upon Him to forgive our sins. There is no man in the world whose body has never had pain or infirmities, or neither is there a single man in the world whose heart always has been right and good. We are daily and hourly dependent upon God for the life and health of the body, and so also are we constantly dependent upon Him for our spiritual life and health.

When Jesus dwelt on earth among men, there was brought to Him a paralysed man. The sick man had faith. Seeing this, the Lord said to him, "Man, thy sins are forgiven thee." To prove that He had power to forgive sins, the Lord said to the paralysed man, "Arise, take up thy couch, and go into thine house." As soon as these words were said, the paralysed man was instantly made well and strong. He stood upon his feet and walked. This clearly proves that the Lord can feel all our infirmities, whether they are physical infirmities or spiritual infirmities.



CHAPTER 20

Remedies That Are Efficacious.

A consideration of the facts stated in the preceding chapter, shows that of himself man has no power to cure disease. While this is true, yet there is much he can do to help or hinder the healing process; and it is one of the chief aims of this book to describe the various methods that help the healing process.

Natural Remedies

In this chapter will be described those remedies that have a wide range of usefulness,—such, in fact, as will be helpful in the treatment of almost any disease. They are called natural remedies because they do not consist of poisonous drugs, but are those things from which the body naturally secures strength and health. Some of them are very common and very inexpensive, yet they are very efficacious.

Sunlight

The important relation of sunlight to health is shown in the effect produced upon plants or animals when they are deprived of sunlight. If a plant is removed from a sunny place to a dark place, it quickly becomes yellow and sickly. Animals kept in the dark soon become weak and sickly.

Sunlight causes our bodies to thrive as it causes the plants to thrive. Sunlight will kill disease-germs in a short time. Very few cases of skin disease occur on those parts of the body that are constantly exposed to the light. It has been proven repeatedly in hospitals that the sick people who are kept out on the open verandahs and in those rooms that face the sun, recover more quickly than do those who remain in the poorly-lighted rooms. Sunlight is acknowledged to be a remedial agent that is absolutely essential in the treatment of tuberculosis. No matter what the disease is, the sick person should be in a well-lighted room, or, better still, he should be

out-of-doors protected by an awning or some other kind of a shade. The sun is the source of all the heat, light, and energy in the world. It is life-giving. Provision should be made so that every room in the house may be well-lighted. People who live in poorly-lighted houses are prone to contract disease.

Pure Air

If one's air-supply is cut off, he will die in a very few minutes. A fire will not burn well if it cannot get a draught of air, neither can our bodies produce the necessary heat and energy to keep in health, unless we constantly breathe pure air. One who is sick is in greater need of pure air than one who is not sick. In Chapter 6 of this volume the importance of a continuous supply of pure air has been emphasized.

Water

Water is one of the commonest things in the world. It is also one of the cheapest things in the world. No plant or animal can live without water. Two-thirds of the weight of our bodies is water.

When a man cannot secure daily a sufficient amount of water in his food and drink, he quickly loses his strength. In Chapters 8 and 9 it has been shown that it is necessary to drink an abundance of water in order to help the skin and kidneys in expelling from the body the poisons that are being constantly produced in every part of the body. Water-drinking cleanses the body internally, just as bathing cleanses the body externally.

Water is useful in the treatment of almost every disease which afflicts men. Its use as a remedy in the treatment of disease ante-dates that of any other remedy, and it is far more useful in the treatment of disease than is any known drug. An adult should drink from five to seven pints of water daily. All water should be boiled before being drunk. Water for drinking should not be too cold. Do not drink ice-water. All who are sick should drink an abundance of water. It is especially important that those who have fever should drink large quantities of cool water. In case of pain in the stomach, with the spitting up of sour fluid, drinking

hot water will relieve the pain. Every infant should be given a small amount of warm water (that has been boiled) to drink several times a day. Oftentimes when a baby cries, it is crying for water and not for something to eat.

How to Use Water in Curing Disease

It is the blood that heals. This fact has been fully discussed in Chapters 7 and 19. It is the blood that maintains the heat of the body, destroys disease germs, and repairs diseased or injured portions of the body. This being the case, the aim in curing any part of the body that is diseased, should be to secure an active circulation of the blood through that part. The circulation of the blood in any part of the body can be controlled by the use of hot and cold water. By means of alternate hot and cold applications of water, the circulation of the blood in any part of the body can be markedly increased. The hot application, which should continue about two minutes, causes the blood-vessels in the part of the body where the heat has been applied, to dilate. As soon as the blood-vessels dilate, the blood rushes in from other parts of the body to fill them. If cold is then applied for ten to twenty seconds, the dilated blood-vessels will be caused to contract; as they contract, the blood is forced out into the blood-vessels in other parts of the body. Repeating these alternations of hot and cold constitutes a veritable pumping process, which greatly increases the amount of blood flowing through the diseased part.

Fomentations

Fomentations are one of the most effective means of using water in the treatment of disease. The best material for fomentation cloths is heavy flannel. A single flannel blanket will make two pairs of fomentation cloths. In place of flannel blankets, any woolen clothes may be substituted. Fomentation cloths, to meet all conditions, should be almost three feet long and nearly as wide.

In giving fomentations, about half a bucketful of boiling water is needed. A bucket made of tin or galvanized iron is best for this purpose, because the water can be kept constantly boiling by placing the bucket on a small charcoal or primus

stove. In order to accomplish the best results three fomentation cloths are necessary, but two cloths will serve the purpose, in case you do not have three. Take one of the cloths and spread it out on the table or on the bed. Take one of the other cloths and fold it into three thicknesses. Grasp the two ends of this folded cloth and dip the cloth into the boiling water. When it is thoroughly soaked with the boiling water, wring out the cloth thoroughly by twisting the two ends quickly in opposite directions and then pull, holding the cloth over the bucket. Then twist the two ends and pull as before. In this manner the cloth can be



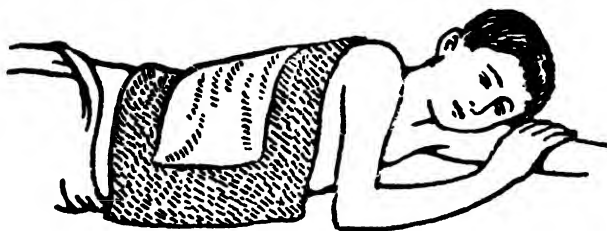
The Proper way to Wring Out Fomentation Cloths

wrung dry without burning the hands. Enfold this hot cloth in the other cloth, which has been kept dry, and apply to the affected part. For the first fomentation, there should be two thicknesses of flannel between the hot, wet cloth and the skin. As soon as one becomes accustomed to the heat, one thickness is sufficient. Care should be exercised not to burn the skin. The more water the cloth contains, the hotter it will feel.

For application to the spine, the fomentation cloth should be about six or eight inches wide, and extend the entire length of the spine. Over the chest, stomach, liver, or bowels, it should be folded so that it will be wide and short. If a fomentation is too hot, lift it up for a second, just enough to pass a towel between it and the skin, to remove the moisture from the surface of the body; and then immediately apply the fomentation snugly. The fomentation should be

left on until it begins to feel comfortable, then it should be renewed by unfolding the dry cloth and leaving it in place and re-wetting the wet cloth and placing it back in position, after having it wrung dry as before.

Ordinarily the fomentation should be changed every three to five minutes, and should be continued for fifteen to twenty minutes. When applied to relieve pain, it may be necessary to continue them for from thirty to sixty minutes. In all cases, the fomentation should be very hot.



Fomentations to the back

Fomentations will relieve nearly all kinds of pain, and it is always safe to use them. They are far superior to liniments and ointments of all kinds. In the treatment of most cases where fomentations are used, their effectiveness is increased by making a very brief application of cold after each hot fomentation. The cold can be applied by wringing two thicknesses of some thin cloth, like a handkerchief or small towel, out of cold water, and applying it over the fomented part for a few seconds. Remove and dry quickly, then follow immediately with another fomentation.

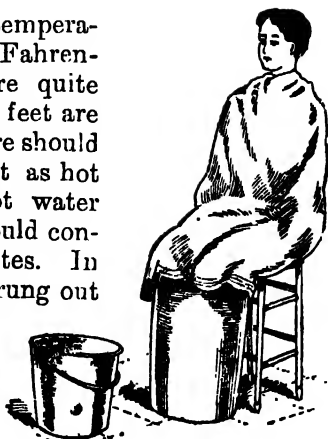
In every case after applying fomentations, apply cold to the area for a few seconds. Then rub dry with a towel.

In the chapters describing the treatment of the various diseases, mention will be made of those diseases in which the fomentation, the hot foot-bath, the sitz bath, the enema, etc., are useful.

Hot Foot-Bath

For a hot foot-bath, a large wooden pail, a washbowl, or even a tub may be used. In the foot-bath, the water should

reach above the ankles, and the temperature should be about 105 degrees Fahrenheit to start with. The feet are quite sensitive to heat. Soon after the feet are in the warm water, the temperature should gradually be increased to a point as hot as can be borne, by adding hot water a little at a time. The bath should continue from five to twenty minutes. In giving a hot foot-bath, a cloth wrung out of cold water should always first be placed on the patient's forehead, and this cloth be frequently renewed. This cold cloth prevents dizziness and headache.



Hot Foot Bath

The hot foot-bath, if prolonged to fifteen or twenty minutes, is a very effective means of producing perspiration. If such an effect is desired, surround the patient with blankets, and have him drink hot water or lemonade, during the time his feet are kept in the hot water. Keep the head cool. Then put him to bed, cover well, and allow the sweating to continue.

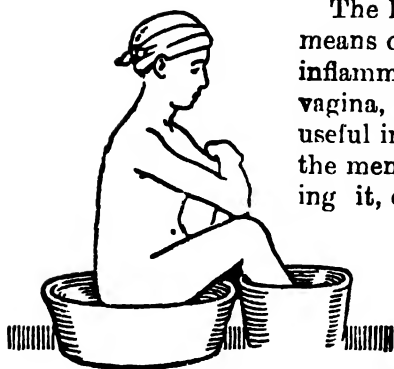
The hot foot-bath is excellent in curing headache. It is useful in the beginning of a fever; in inflammation of the pelvic organs; to overcome chilly sensations; to produce perspiration; and for sore, aching, or cold feet.

One or two tablespoonfuls of ground mustard, stirred into the water, will intensify the effect of the bath. In fevers and with weak patients give the hot foot-bath with the patient lying down.

The Sitz Bath

For the sitz bath, an ordinary tub may be used. The hot sitz, temperature 105 to 115 degrees Fahrenheit, is the most common and useful form of taking this bath. The duration is from five to fifteen minutes, usually.

When taking a sitz bath, the feet should be in a smaller tub of warm water. Protect the upper part of the patient's body with a garment or a blanket, and keep a cool wet cloth applied to the forehead.



Hot Sitz Bath

The hot sitz is an excellent means of relieving pelvic pain due to inflammation of the uterus, ovaries, vagina, or bladder. It is also very useful in relieving severe pain during the menstrual period, or just preceding it, or to bring on the menses.

In the latter case it may be necessary to repeat the treatment several days in succession, even two or three times a day. It is also good to relieve pain in the hips.

After a hot sitz bath, the parts of the body that were in the hot water should be rubbed quickly with a cold wet towel, and then dried thoroughly with a dry towel.

Cold Mitten Friction

For a cold mitten friction, a pad or pan of cold water is required, and a mitten made from coarse alpaca cloth, or from coarse towelling. Proceed by dipping the mittened hand into the water, while grasping the hand of the patient with the other. Squeezing the water out of the mitten, make a quick sweep from the fingers to the shoulder of the patient and back again, and then very rapid friction, according to the sensitiveness of the patient. Repeat this twice or three times. Then dry by very brisk rubbing with a coarse towel. Repeat on the other arm, then the chest, abdomen, legs, and back. The entire treatment should not take more than from twelve to fifteen minutes. The effect of this treatment depends mostly upon the briskness with which it is given. Avoid rubbing the abdomen in cases of typhoid fever or appendicitis.

As a rule, the cold friction is most effective when preceded by some hot treatment, such as fomentations.

Fomentations, followed by cold friction, once, twice, or three times a day are sufficient to produce a veritable resurrection in many patients.

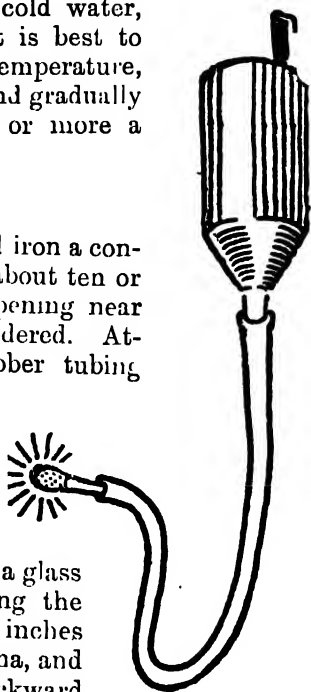
Friction of any kind should be avoided in all eruptive diseases, or skin diseases.

With those unaccustomed to cold water, or with the feeble or the aged, it is best to begin with water at a moderate temperature, say about 80 degrees Fahrenheit, and gradually lower the temperature one degree or more a day.

The Vaginal Douche

Make out of tin or galvanized iron a container five inches in diameter and about ten or eleven inches high, with a small opening near the bottom to which a spout is soldered. Attach to this spout a piece of rubber tubing four feet or more in length; and at the end of the rubber tube attach a glass or rubber nozzle. (See illustration.)

The patient should lie upon her back in the bath-tub, or put a douche-pan under the hips. Use a glass or rubber tube, with openings along the sides, the tube being about six inches long. Insert this tube in the vagina, and always direct it downward and backward along the lower vaginal wall. Have the water container three feet above the hips.



For simple cleansing purposes, the water should be warm, *i.e.*, about 100 degrees Fahrenheit.

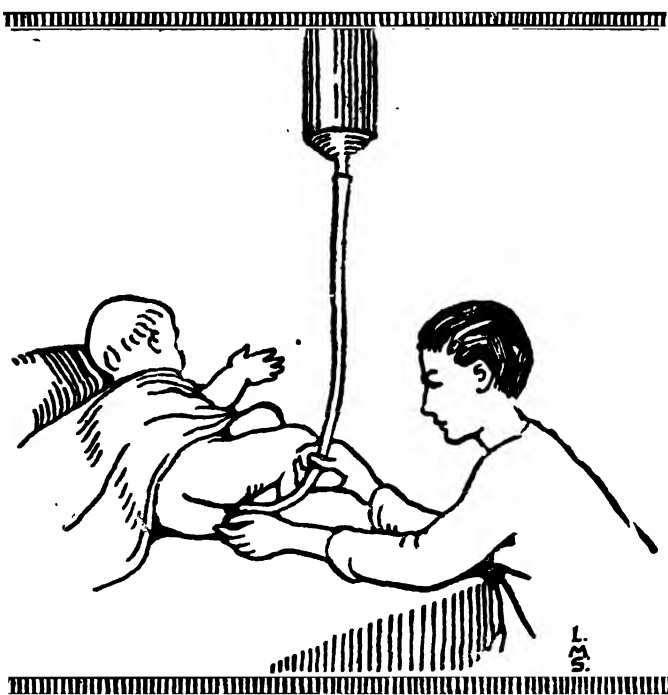
To relieve pelvic pain, the water should be from 110 degrees to 115 degrees Fahrenheit, and the quantity at least four quarts.

To reestablish the menstrual periods, use several quarts of water at 103 degrees Fahrenheit, and repeat two or three times a day.

Alternate Hot and Cold Immersion

For any infection of the hand or foot, such as an open sore or ulcer, the remedy par excellence is the application of alternate hot and cold, as follows. Provide one bucket of very hot water, and another bucket of cold water. Place the dis-

eased part, whether hand or foot, first into the hot water for a minute; then withdraw and insert for a second or two in the cold water. Alternate in this way for thirty minutes. This treatment, repeated three times a day, a half hour each time, will produce marvellous results in the curing of an infected wound or an open sore of any kind. The efficiency of the treatment will be increased much if one part of Lysol is added to every two hundred parts of the hot water.



Giving an Enema to the Baby

For sprains and bruises, this same treatment, with the exception of the Lysol, is very effective.

The Enema

The enema is used to empty the bowels. A douche can, as described under "The Vaginal Douche," is required, also enema tubes, preferably glass tubes; small tubes should be used for children. All water used for enemas should have

been previously boiled. The best position is lying on the back or the side.

For a simple cleansing enema for an adult, use two or three quarts of water at a temperature of 100 degrees Fahrenheit. Pour the water into the enema-can, and suspend the can about three feet above the bed. Pinch the rubber tube to prevent water from running out. Apply a little vaseline or clean oil to the glass end-piece and insert this end-piece into the bowel. It should be inserted in an upward direction and toward the back. Insert for two or three inches, and then release the rubber tube so the water will flow. If there is griping pain, pinch the rubber tube to check the flow until the pain ceases. Resist the desire to defecate, until the greater part, or all the water has entered the bowel. After the water has entered the bowel, the abdomen may be kneaded with the hands. This causes the water to pass up higher into the bowel, and results in a more thorough cleansing of the intestine.

For chronic constipation, or where it is necessary to take an enema daily for a few days, the cool enema, 70 degrees Fahrenheit to 80 degrees Fahrenheit, is more tonic.

In high fever, as in pneumonia or typhoid fever, the enema at 70 degrees Fahrenheit, retained for a few minutes, is very efficient in reducing temperature. It may be given every four hours. With high fever in scarlet fever, the enema at 80 to 90 degrees Fahrenheit, should be given. A cold enema should not be given to a young child.

In diarrhœa that persists, a very hot enema, 110 to 115 degrees Fahrenheit, may be given. Not so, however, in typhoid fever. In this case, give an enema at 90 degrees Fahrenheit, after the stool, or several times a day.

Hot Water Bags

A rubber bag filled with hot water retains the heat a long time, and may be used in place of fomentations, by surrounding the bag with a moist piece of flannel. As a rule moist heat is more effective than dry heat. For backache, toothache, menstrual pains, or pains in the abdomen, the hot-water bag is almost indispensable.

Fill the bag one-third full of boiling water, then press the sides of the bag together above the water. This

will exclude the air and steam. Then screw on the top, so that it will not leak. When placing on the feet, wrap the bag in a flannel cloth. If a patient is unconscious, great care must be exercised to prevent burning.

How to Make a Cold Compress Without Using Ice

In this chapter the use of the cold compress has been referred to several times. In many localities it is impossible to secure either ice or cold water. In such case the following method may be used: Wet a thin cloth or a small towel in water, then without wringing out the water, grasp the towel by two corners and swing it back and forth in the air. By swinging it vigorously ten or twenty times the towel will become quite cold.



NOTE: SPONGING—Sponging consists of the application of a liquid by means of a sponge, a wash cloth, or the bare hand, in which the chief effect is derived from the liquid itself, little friction being needed.

Plain hot or cold water or water containing salt or soda, vinegar and salt, or alcohol, or witch-hazel may be used. The order of treating the various parts of the body should be the same as with the cold mitten friction. (Page 97.)

In using cold water to reduce fever, a wash cloth or a sea sponge should be used. It is squeezed out only enough to prevent much dripping, and considerable time is spent on each part of the body, going back and forth over rubbing. Hot sponging is used in fevers where there is chilliness, the same methods being followed as with cold sponging. In sponging with weak salt water, soda solution, vinegar and salt, and in applying alcohol or witch-hazel the bare hand is best.

To prepare the water for a **SALINE SPONGE**, dissolve about four ounces common salt in a basin or bowl of tepid or cool water. It is a mild tonic and circulatory stimulant for anæmic or weak persons.

For the **ALKALINE SPONGE**, put two ounces of sodium bi-carbonate (baking soda) into a basin of cold water. It is useful in itching and hives. It need be applied only to the affected part.

The **VINEGAR AND SALT RUB** is useful in checking the night sweats of tuberculosis. Prepare a half pint of equal parts of vinegar and water, to which add one or two tablespoonfuls of salt. Apply principally to the parts that perspire the most.

The **ALCOHOL RUB** is a very popular means of finishing a sweating bath, or for quieting purposes at night. It may be used in place of a wet hand rub or cold mitten friction, though it is less effective than the latter. Use equal parts of grain alcohol and water. Wood alcohol is poisonous when applied to the skin, and should never be used.

The **WITCH-HAZEL RUB** has about the same effect as the alcohol rub. It is used undiluted. ED.

CHAPTER 21

Disease Is Caused By Germs

The most dangerous enemies of man are those that are the smallest in size. If it were reported that a fierce, man-eating tiger had entered a village, the people would be greatly frightened. Those who possessed guns or swords would sally forth to kill the beast, while those who had no weapons of defence would run into their houses and bolt the doors. But there are countless multitudes of enemies in every village that are far more dangerous than any tiger. The tiger at most would kill only two or three persons, and then run away; but these other enemies that are in every village, remain there year in and year out, and cause 98 out of every 100 deaths that occur among the villagers. The enemies referred to, are "disease-germs."

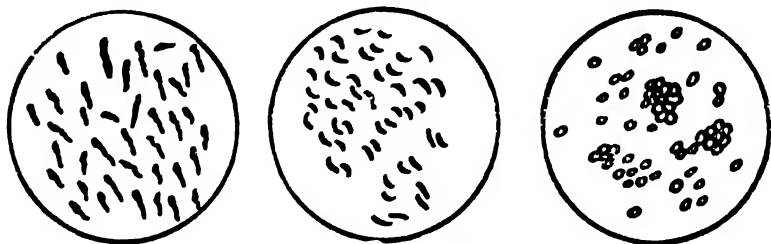
What Are Germs

In the first chapter of this book, mention has already been made of "disease-producing germs." These disease-producing germs are also called micro-organisms, because, they are so small that one cannot see them



Using the Microscope

without making use of a microscope. There are some very tiny plants and living creatures that can be seen by the eye for example, the tiny duck weed seen growing on the pond is very, very small, when compared with the cypress tree growing by the pond side. The flea that annoys a big six-foot tall man is very small as compared with the man. But there are many kinds of tiny plants and tiny creatures as much smaller than the duck weed or the flea, as the duck weed or the flea is smaller than the great tree or the six-foot man. The disease-producing germs belong to this class of extremely small plants and animals. Most of them are so small that if there were a thousand of them gathered together in one ball it would not be larger than a mustard seed. The illustration shows the picture of some germs as they look when magnified 1,000 times. Some of them are round, some of them are long.



Disease Germs Highly Magnified

Germs multiply very fast. It requires several months from the time a seed is planted until it sprouts, grows up, and yields other seeds. But one germ, if it is in a warm place will, in thirty minutes' time, divide and become two full-grown germs; and in another thirty minutes those two germs will each divide into two, thus producing four; and in another half hour there will be eight. If they keep on multiplying at this rate, the one germ will produce a family of a million germs in ten hours' time.

Germs will grow in any place that is warm and has a little moisture. The conditions that favour most rapid growth and multiplication of germs are, warmth, moisture, and darkness. Almost all plants and animals require sunlight in order to grow well, but germs are killed by strong sunlight. Germs also grow abundantly in places where there is decaying vegetable or animal matter. As a general rule

it may be stated that the cleaner and lighter the place, the fewer germs there will be in it.

Since germs are so small, so light in weight, multiply so rapidly, and can grow in or on almost everything, they are distributed very widely. In fact, there is hardly any place you could name where there are no germs. They are in our mouths and noses, and on the skin. They are in the food we eat and the water we drink. They are on the floor and walls of our house, in the surface soil of our court-yards, in the water of the ponds, wells, and rivers, and in the air we breathe. The air on high mountains does not contain germs. Wherever human beings live in the largest numbers, there the most germs are found.

Not all germs are harmful, but there are so many that harm man that the only safe plan is to be on guard against all germs.

How Germs Cause Disease

The way germs cause such diseases as cholera, typhoid fever, diphtheria, tuberculosis, plague, boils, scarlet fever, syphilis, gonorrhœa, etc., is as follows: There are some plants, like the lacquer tree and the poison ivy, that give out poison, so that if one comes in contact with the plant, they are poisoned; there is an eruption, and fever. When germs enter the body, and grow there, they also produce poison in much the same manner as the poison ivy plant. It is the poisons produced by the germs that cause the fever, headache, pain, diarrhœa, etc., that occur in the diseases which afflict us.

Where Disease-Germs Come From

The germs that cause disease do not originate within our bodies; they enter from without. They come from sick people or from sick animals. For example, a man who is sick with cholera has in his body the germs that cause cholera. Whenever this man uses a dish or any food-containing utensil, some of the cholera germs from his mouth and his hands get on the dish; and if any other person uses that dish without first washing it in boiling water, he will be almost sure to swallow some of the cholera germs. The germs will multiply in his alimentary canal, and in a short

time will produce enough poison to cause fever, diarrhoea, and all other symptoms of cholera. Another way in which germs may be spread from the man sick with the cholera, is through the bowel discharges. The bowel discharges of a person who has cholera are full of cholera germs. If this faecal matter is thrown out into the pond or river, or thrown out on the ground near a well, the germs will continue to multiply; and those who use the water from the pond or river or from the well that is close by the place where the faeces were thrown, will take some of the cholera germs into their bodies, and these germs will soon be in the alimentary canal; and in a short time such persons also will have cholera.

In the sputum of those who have tuberculosis of the lungs there are myriads of disease-producing germs. When these persons spit on the floor or on the ground, the sputum soon dries, and becomes mixed with the dust. This dust gets into the air, and people, when they breathe in that air, also breathe in some of these germs that cause tuberculosis. If the person who thus takes these germs into his body is not very robust, the germs will multiply rapidly, and quickly cause tuberculosis of the lungs. These two instances will suffice as illustrations to show where disease-germs come from.

In addition, however, it should be mentioned that there are a few diseases that men contract from the lower animals. Thus we contract rabies (hydrophobia) from the dog, plague from the rat, trichinosis from the hog, and tuberculosis may be contracted from cattle. Certain diseases of the skin, such as ringworm, may be contracted from the cat and the dog.

How Disease-Germs Enter the Body

There are three doors of entrance by which germs get into the body; namely, the mouth, the nose, and any injured spot in the skin. Germs that cause disease enter through the mouth in our food and drink. When one eats with unclean hands, when children put their fingers into the mouth, or when a piece of money is placed in the mouth,—in all these ways germs enter. Disease-producing germs enter the body through the nose along with the dust that is in the air we breathe.

The unbroken skin forms a covering for the body through which germs cannot enter, but when the skin is injured in any way germs can enter the body just as rain can get into the house when the tiles are removed from the roof. If one accidentally injures the skin by cutting it with a knife, or by bruising it, or if a splinter or a needle is thrust into it, a smaller or larger opening is made in the skin; and since there are always germs on splinters and knives, the germs get down under the skin. Here they multiply, and soon the injured place becomes red and swollen, and in a day or two there is pus in it. All this is due to the germs that entered when the skin was injured.

There is another way that disease-germs enter through the skin, and that is through the bites of insects such as the mosquito, the flea, the louse, the bed bug, the tick, etc. When these insects bite a person they suck out a small amount of the blood. If the person bitten is sick with malaria or typhus, the insect when it sucks his blood takes into its body some of the malaria or typhus disease-germs. Later, that same insect will bite a well person and inject into his body some of the germs it has sucked out of the sick person's body. This is the way in which several very serious diseases are contracted.

How to Avoid Being Infected by Disease-Germs

Knowing where disease-germs come from, and under what conditions they grow and multiply most rapidly, and knowing also how they gain entrance into the body, we can now briefly discuss the methods that can be used to guard against being injured by them.

Since almost all disease-producing germs come from diseased people, it is a matter of the first importance to destroy all germs as soon as they leave the sick person's body, and by so doing prevent the germs from being scattered in the food and drink, or on the utensils that other people use. In all cases of sickness such as cholera, typhoid, plague, diphtheria, etc., the sick person should be in a room by himself. In most of these diseases the sick person should be taken to an isolation hospital if there is one available. But wherever the sick person is he must have a room by himself, and no one but those who are caring for him should enter the room. All

dishes, etc., that are used for the sick should be kept in the room and washed with boiling water each time after they are used. The nurse should take pains to wash her hands frequently, and she should not eat her food in the room where the sick person is.

The urine and fæces voided by the patient should not be thrown out until they have been mixed with some disinfectant. See Chapter 47 for the method to be used. The sputum and the discharges from the nose also contain the disease germs; therefore the sick person should expectorate and blow the nose into pieces of paper. These pieces of paper should be burned.

To guard against disease-germs entering the body one must be careful not to eat any unclean food. The water from rivers, ponds, and most wells is contaminated with poisonous germs and should be boiled before being drunk. Any fruit that one has not gathered from the tree one's self, should be scalded and peeled before being eaten.

Be careful not to injure the skin. In case of injury to the skin, apply tincture of iodine at once. Keep all clothing and bedding clean by frequent washing in order to avoid being bitten by bed bugs, lice, etc. Wherever there are mosquitoes, use a mosquito net over the bed to avoid being bitten by them.

After taking every possible precaution, it will be unavoidable but that disease-germs will at times get into the body. But, thanks to the loving watch-care of an all-wise Heavenly Father, He has given our bodies the power to destroy disease-germs if they are not too poisonous or too numerous. This power of resisting disease and destroying poisonous germs is in the blood. If one does not have good food, or if he breathes air that is not pure, or works so hard that he is continually fatigued, or if he uses wine or tobacco, or if he is given to sexual excesses, the blood loses this power of resisting and destroying disease-germs. Therefore it is important that in our efforts to guard against being infected with disease-germs, we eat good food, breathe pure air, take seven to eight hours sleep every night, do not use alcohol or tobacco in any form, and live clean lives morally. In this way the body will be strong and vigorous, and the blood will be enabled to kill the few disease-germs that may gain entrance to the body from time to time.

CHAPTER 22

How to Live a Hundred Years

An ancient sage said, "Man does not die; he kills himself." This is true in the case of most people. While it is true that all must die sometime, yet very few live out the natural term of life. By taking the ages of those who die, and estimating the average, it is found that the average length of life in Western countries is between thirty or forty years, while in most countries in Asia the average length of life is not over twenty-five years. Many scientists estimate that the natural term of man's life is about one hundred years. Thus it will be seen that most people do not live more than one-third as many years as they should live; and this is why it may be said that people kill themselves. Otherwise they would live to be a hundred or more years old.

The records of every community contain the names of men who lived to a great age; some of them lived to be over a hundred years old. But it is found in the case of all these centenarians that they began to care for their health early in life.

Man's life may also be compared to a sum of money deposited in a savings bank. If the man who deposits the money will live economically, he will not have to draw on the money deposited in the bank. If he lives extravagantly, and draws out a small sum to-day, and some more to-morrow, his money will soon be exhausted and he will be a poor man. In like manner our health may be regarded as capital in the bank. If cared for, it will not only not grow smaller in amount but will actually increase. But neglecting to care for any part of the body, injury results and this is like drawing a certain amount of your capital out of the bank, for if the health is injured a little to-day and some more to-morrow, health will soon be gone; you will be an invalid, and an invalid is a poor man.

Most men and women while young have good health and are strong physically. When warned against doing

things that injure the health they scoff and say, "I am young and strong; it will not hurt me to do this." The God who rules the universe has fixed a law that governs the actions of every man and woman. "Whatsoever a man soweth," He declares, "that shall he also reap." If a man sows wheat, he will get a harvest of wheat; if he sows dhal, he will secure a harvest of dhal. The young person who forms bad habits of living is sowing the seeds of disease in his body, and it is an absolute certainty that sooner or later he will reap ill-health. In Chapters 14, 15, 16, and 17, it has been shown that sexual excesses and the diseases resulting from dissipation, shorten life. Also that the use of such habit-forming drugs as opium and tobacco sow the seeds of ill-health and so shorten life.

Many who read this book have already passed the period of their youth, and may already be afflicted with disease. They will naturally ask, since I have neglected to carefully guard my health during the past years, is there any hope that I may have long life? This will depend on how seriously the body has been injured. But there is no one who cannot greatly lengthen the years of his life if he will at once leave off all those habits that injure the health and do those things that tend to long life. There are many instances of men forty or more years old with diseased bodies, who have reformed their habits and lived to the age of seventy-five or eighty years.

In Order to Live 100 Years a Man Must Be Temperate

Temperance is one of the essentials to long life. The lives of men and women who have reached the century mark have been free from excesses of all kinds. They have been temperate in eating and drinking. Temperance also has to do with the control of the passions as well as the control of appetite. Anger, envy, bitter feelings, all have a harmful influence upon the body and tend to shorten life. Kind thoughts and a contented mind are life lengtheners. The one who thinks and acts in harmony with the Infinite One who rules the universe is connected with the source of life. By this means he can prolong the days of his life.

Those who have lived long have lived very simply. A woman in America who lived to be over one hundred years old, when asked what she ate, replied, "Corn bread, and potatoes

is what I eat." A man in Syria who reached the age of 113 lived chiefly on bread and figs and drank nothing but water and milk.

It is thought by some people that when they grow old they must use much meat and wine and rich foods. This is a serious mistake, for such foods not only harm the digestive organs, but they also tend to leave a large amount of poisons in the system, and these poisons shorten life.

Food and Exercise

Among the foods that are especially adapted to aged people might be mentioned rice, soft-boiled eggs, and bread that has been baked the second time, and made crisp. If the teeth are poor, hot water may be poured on this to soften it. Fruits should be eaten frequently. When ripe fruits can be secured at a reasonable price, eat raw fruits. Steamed or boiled fruits are also excellent. Cakes and confectionery should not be eaten.

Daily exercise is essential in order to live long. The body is like a machine; if the machine is not used, it soon gets rusty; and everyone knows that a rusty machine very easily breaks. If one does not exercise, the body becomes stiff. In the case of old people if they do not exercise, the body becomes so stiff in time that they no longer can use the legs in walking. Some famous men who lived long made it a practice throughout their lives to exercise daily, and even after they had become very old they would take a walk daily in the fresh air.

The mind should be exercised as well as the body. If those who are old would do this, they would not become childish, as many people do.

Avoid Exposure

Every old person should take care to guard against exposure to cold and dampness. In cold weather, old people need more clothing than young people. An old person catches cold more easily than a young person. Old people should bathe frequently. If the skin is rubbed briskly with a dry towel after bathing, this will serve as a preventive against taking cold easily.

Rules for Longevity

A British writer who lived to an advanced age gives several rules that will enable one to have long life.

1. Secure at least eight hours of sleep daily.
2. Be sure that your sleeping-room windows are open so that the room will be well ventilated.
3. Take a bath every morning in water that is the same temperature as the body. Following the bath be sure and rub the skin until it is thoroughly dry.
4. Eat but little meat, and see that it is well cooked.*
5. Be careful not to drink any unclean water.

A group of scientists in America, among whom are some of the ablest scientists in the country, give the following rules for those who desire to keep in health and to live long.

1. Be sure to have the rooms you occupy well ventilated.
2. Seek out-of-door occupation and recreation.
3. Sleep out of doors if you can.
4. Breathe deeply.
5. Avoid over-eating.
6. Eat sparingly of meats and highly-spiced foods.
7. Eat slowly and chew thoroughly.
8. The bowels should be evacuated daily.
9. Stand, sit, and walk erect.
10. Keep the teeth, gums, and tongue clean by brushing them daily.
11. Do not allow poisons or disease-producing germs to enter the body.
12. Do not overwork. Rest when you are fatigued. Sleep from seven to nine hours daily according to your needs.
13. Avoid anger and worry—keep serene.

NOTE—While it is better to "eat but little meat," as these scientists suggest, in our opinion it is better yet to dispense with flesh foods altogether. Ed.

CHAPTER 23

Pregnancy and Confinement

The only dependable record we have of the origin of man is found in Genesis, the first book of the sacred Scriptures. This record says, "God said, Let us make man in Our image, after Our likeness, and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth. So God created man in His own image; in the image of God created He him; male and female created He them, . . . And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul."

We learn from this record in Genesis that every plant and animal was given power to reproduce and thus perpetuate its kind. With reference to man the Creator said, "Be fruitful and multiply, and replenish the earth." The Creator could as easily have created a world full of people as to have created the two people—the man and woman, whom He did create. But He chose to divide, as it were, this creative power with man. For this reason men and women should not look upon the reproductive function as a means simply of gratifying their passions, but they should regard it as though there was something about it that is, in a way, akin to the divine.

Conception

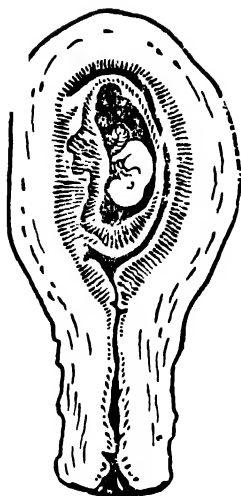
Mention has been made in Chapter 14 of the necessity of men after marriage avoiding excessive sexual indulgence. While the sexual relation of the man and wife is right and natural, yet it is right and natural only when controlled by law and reason. The need for controlling sexual indulgence may be made plain by comparing it with hunger and thirst. Both of these are natural instincts, which it is right to satisfy in an intelligent manner; but every one knows that it is not right to indulge our desire for eating and drinking to the point of becoming gluttons or drunkards. Neither

is it right or reasonable for a man, simply because he can do so if he desires, to indulge in sexual intercourse to the point of becoming a sexual glutton.

In the case of frequent pregnancies, the children that are born are as a rule not strong or robust. Frequent child-bearing is also a heavy drain on the health of the mother. This is an added reason for temperance in the sexual relation. The question may be asked what course is open to those married men and women who do not wish to be extreme either in abstaining or indulging, *i. e.*, those who wish to be temperate in their sexual relation? A course that is in harmony with nature is as follows: Menstruation occurs monthly. A ripe ovum usually passes to the uterus, and in this way nature prepares for impregnation. It is found that sexual intercourse during the week preceding menstruation, and at any time during the ten days following the close of menstruation, is more likely to result in impregnation than sexual intercourse at any other time. This leaves a period of about a week between menstrual periods when sexual intercourse is least likely to result in impregnation. Limiting the sex relations to this period of about a week will in most cases serve to lengthen the interval between pregnancies, with the result that the children that are brought into existence will be better developed in every way than the average child. Any normal man or woman should be able to limit their sexual relation to this extent. It should also be known to all that when the sexual act is incompletely performed, or when methods are used to prevent conception, it fails to satisfy and leads to a feeling of repulsion, and sooner or later gives rise to much misery and suffering.

Development of the Child in the Uterus

As soon as a woman becomes pregnant, the ovum, which is much smaller than a mustard seed (it is one 1/125th of an inch in diameter) begins to grow. In a few days' time it has the appearance of, and is almost as large as, a mulberry. In four weeks' time it is as large as a pigeon's egg. By the end of the second month it is about the size of a hen's egg, and has begun to take the shape of a human body. There are blood-vessels which attach it to the inside of the uterus, and the food which the mother eats and digests passes through



her blood-vessels to the embryo (the child that is growing in the uterus), and makes it grow. (See the illustration showing embryo in the uterus.)

It is a most wonderful thing how the little mass that looks like a mulberry can grow and develop into a human body with its 206 bones and over 500 muscles, with eyes and ears, heart, brain, etc. It is another evidence that a supreme Being created man and causes the little mass to develop into a perfectly formed body. Anciently there was a wise king by the name of David, who said, "I will praise Thee (God), for I am fearfully and wonderfully made; my body was not hid from Thee when I was made in secret; . . .

for Thou hast formed my reins. Thou hast knit me together in my mother's womb."

By the end of the fourth month the child is five inches long. By the end of the sixth month it weighs about two and one-half pounds. If it should be born at the end of the sixth month, it would not live more than a few days. By the end of the ninth month, the child weighs from four to six pounds, and is about eighteen inches long. If the child is born at this time and is well cared for, it will live. At the end of the tenth month (280 days), the child is fully developed. It will weigh from six to ten pounds, and is about twenty inches long.

Duration of Pregnancy

The duration of pregnancy is about 280 days. The following methods may be used in estimating the time when the child will be born. Count forward nine calendar months from the day when the last menstruation began, and add seven days to this. For example, if the first day of the last menstruation was January 1, the date when it is expected that the child will be born would be October 8.

Another method that is very easy to use is to count 280 days from the first day of the last time the woman menstruat-

ed. In no case can the date be estimated exactly. The child may be born two weeks earlier or two weeks later than the time calculated. For example, if the last time the woman menstruated before becoming pregnant was on June 1, then 280 days from that time would be March 8. This is the date when the child will be born.

Signs of Pregnancy

How may a woman know that she is pregnant? There are a number of signs that will enable her to know. When a married woman who has previously been menstruating regularly ceases to menstruate, it is fairly certain that she is pregnant, yet not absolutely certain; for a woman may become pregnant while she is still nursing a child, and she may become pregnant before she has begun menstruating after the last child was born.

Morning sickness usually occurs when a woman is pregnant a few weeks. Upon getting up in the morning she will suddenly feel sick and nauseated and will begin to retch and vomit. It may occur every day for several weeks. This is a fairly certain sign of pregnancy.

During the second or third months of pregnancy the breasts become larger and firmer. The nipples become more prominent.

From the third month of pregnancy on there is a gradual enlargement of the abdomen.

In about four and a half months after becoming pregnant, the woman usually feels the first movements of the child in her uterus.

Care of the Pregnant Woman

The woman who is pregnant must have a liberal amount of nourishing food; for she must eat to supply two persons, herself and the child in her uterus. It is very important that the bowels move daily. If there is constipation, she should follow the instructions given in chapter 29.

She should sleep in a well-ventilated room.

It is important that the pregnant woman take some muscular exercise daily; otherwise her muscles become weak and flabby, and the child will be weak, and she will also have a very difficult time when the child is born.

She should drink several pints of pure water daily.

She should avoid the use of wine, tobacco, and betel-nut

She should take a cleansing bath frequently.

Sexual intercourse should not be indulged in during pregnancy.

Preparations for Confinement (Labour)

As the time of confinement draws near, the room should be swept well. Remove everything hanging on the walls and then whitewash the walls with lime. The floor should be scrubbed, or if it is an earth floor, sweep it well and then scatter lime in the corners of the room and under all the furniture. Remove everything from the room, except bed and table. If there is only one room in the house, hang up clean mats and make a partition between the section where the woman's bed is located and the other part of the room.

The articles that should be provided are the following:—

1. A pound or more of absorbent cotton to be used for sponging up blood, etc., and to be used for the pad that is placed over the vaginal opening after the child's birth.

2. Two or three strips of strong new cotton cloth, ten inches wide and four feet long, to be used as a bandage about the mother's abdomen after the child is born.

3. Several pieces of old cloth which have been washed clean and boiled. These are to be placed under the mother to absorb the blood and other fluids.

4. A piece of Ceylon flannel or some other soft cloth. This should be well washed and boiled. The baby is to be wrapped in this cloth.

5. Two strips of cloth four-and-a-half inches wide by two feet long. This cloth should have been boiled. This is used as an abdominal bandage for the baby.

6. Soap and a small brush, to be used in scouring the nurse's or midwife's hands.

7. A few ounces of lysol. A half teaspoonful of lysol should be added to a pint of water for washing the nurse's or midwife's hands.

8. An ounce or two of boracic acid powder, to be used for dusting on the stump of the umbilical cord.

9. Some small pieces of clean cloth which have been boiled. Each piece should be about three inches long by three inches wide with a hole in the centre large enough to slip over the stump of the umbilical cord.

10. A four or six ounce bottle of boric acid solution (see prescription No. 1, Chapter 50). This is to be used in washing the baby's eyes and in washing the mother's nipples.

11. Half an ounce or an ounce bottle of ten per cent argyrol solution for washing the baby's eyes (see prescription No. 3).

12. A few ounces of vaseline or sweet oil to be used in cleansing the baby's body just after it is born.

13. Some safety pins for fastening the abdominal bandages of the mother and baby.

14. Some clean cloths to be used for baby diapers.

15. Two pieces of cord (tape) six or eight inches long should be provided. Make the tape by twisting together firmly ten or twelve cotton threads. These cords are to be used in tying the umbilical cord. Also provide a good pair of scissors to cut the umbilical cord.

These articles should be provided beforehand. And all the cloths that must be boiled should be kept wrapped in a clean cloth after being boiled. These things should not be handled without first washing the hands.

The clothing prepared for the mother and child, also the sheets for the bed, should be clean, and protected from dust after they are prepared.

It is of the greatest importance that everything be clean. A large per cent of all babies dying in infancy die within two weeks of the time they are born. This is entirely due to the fact that at the time of the child's birth care was not taken to have everything clean. Many mothers are sick and have fever for a long time after childbirth. This is also entirely due to not having everything clean at the time of childbirth.

As soon as the woman knows that the time of childbirth has arrived, she should at once have her bed prepared. Spread several sheets of newspaper, or a sheet of oil cloth over the pad or mattress to keep it from getting wet; then spread clean bed sheets on this. Never use old dirty cloths on the bed to catch the blood.

Several gallons of water should be boiled in clean vessels. Part of this should be poured into clean basins or water jars and covered with a clean cloth, and allowed to cool. Part of the water should be kept hot. A small table should be placed in the room. Wash the top of the table with boiling water, and put on this table the various articles needed. Also provide a couple of washpans; wash them well with soap and hot water.

Labour

Two signs mark the onset of labour. One is that there is a reddish discharge from the vagina; the other is "labour pains." The true labour pains occur at fairly regular intervals of fifteen to thirty minutes at first, becoming more frequent as labour progresses.

If a competent physician can be secured, it is always well to engage a physician. In case a physician cannot be secured, you may be able to secure the help of a nurse trained in midwifery. If a competent physician is called, he will know what to do. The instructions given here are for those cases in which a competent physician is not caring for the case.

Visitors should not be allowed in the room. Not more than two other persons beside the nurse or midwife should be in the room.

The woman should take a warm bath. The region of the external genitals should be washed well with soap and warm water. The urine should be voided frequently during labour. In case the bowels have not moved within the last six or eight hours, she should take a warm enema to empty the bowels. (See chapter 20 for method of using the enema.)

During the first pains the mother may sit up or lie down as desired. When the pains become severe, she should be on the bed with her legs drawn up. The custom of sitting up or standing up during this time is productive of injury to the mother, and it is impossible to keep the child clean with that method.

The nurse or midwife must take the greatest care to wash her hands and arms clean. The arms should be bared up to the elbows. Trim the finger nails, and use something to clean the dirt out from under the finger nails. It is not enough to wash the hands with soap and warm water. Use

also a small brush to scour the hands. A clean dress should be worn. It is well to use a large clean cloth as an apron.

At the time of confinement do not give the woman any medicine, thinking that it will assist her in giving birth to the child. She does not need any medicine and will get along better without it. Do not tie a rope or bed sheet about the woman's abdomen. This hinders rather than helps. The midwife or nurse should not insert the fingers into the vagina. By so doing the woman will be infected and puerperal fever will result.

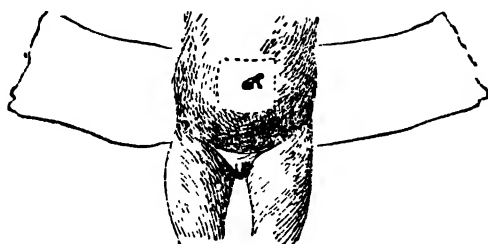
After the "bag of waters" bursts, the head of the child will be seen emerging from the mouth of the vagina. If the position of the child is normal, the face of the child will be downward or toward the mother's back, and the top of the head will appear first. If the head comes out too rapidly, that part will be torn seriously. So as soon as the head can be seen, place the fingers on it and press downward firmly during each pain. The head of the child is thus bent down upon its chest, so that it may the more easily pass through the vaginal opening. The passing of the head is also in this way retarded for a few minutes. In the interval between labour pains the muscles relax. When this loosening occurs, the head should be allowed to emerge. By using this method there is less likely to be tearing.

After the head emerges, there is usually a slight pause before the body is forced out. As soon as the head comes out, pass the finger down alongside of the baby's neck to see if the umbilical cord is wound about the neck or not. If the cord is wound about the neck and is not pulsating, the child should be delivered quickly. In case the cord is not about the neck, the midwife should use a bit of the absorbent cotton or a piece of clean cloth to wipe the baby's eyes, and should also open the child's mouth and wipe out the mouth.

When the child is born, wrap it in the piece of Ceylon flannel or soft cloth. Do not allow the face to be in a pool of blood. The midwife should quickly wash the child's eyes by dropping a drop of ten per cent argyrol solution in each eye. In case you do not have argyrol, wash the baby's eyes by dropping several drops of boric acid solution in each eye. Thousands of babies become blind because their eyes are not washed in this way at the time of their birth.

Just as soon as the child is delivered, the one who is assisting the midwife should place one hand on the mother's abdomen and grasp the uterus. It can be felt through the abdominal walls as a hard lump. Squeeze it lightly. Do not release the hand for an instant, for this squeezing causes the empty uterus to contract, and prevents bleeding.

As soon as pulsation ceases in the umbilical cord, it should be tied and cut. Use the two pieces of tape prepared for this purpose. These two pieces of tape together with the scissors used in cutting the umbilical cord should first be placed together in a small basin and boiled for several minutes. Leave them in the hot water until you are ready to use them. Be sure and tie the tape about the cord very tightly. Never



The Proper Way to Care for the Umbilical Cord

use an instrument to cut the umbilical cord that has not been boiled several minutes just before using; neither should you use any kind of cord or string to tie the umbilical cord that has not been boiled several minutes. It is by the use of articles that have not been boiled, in cutting and tying the umbilical cord, that poisonous germs enter the body causing tetanus.

As soon as the cord is cut, sprinkle some boracic acid powder on the stump. then place over the stump a piece of the cloth that was prepared for this purpose and that has been boiled in water for several minutes. (See prescription No. 4, Chapter 50.) Draw the stump through the hole in the cloth; then fold the cloth back over the stump of the umbilical cord. Hold this cloth in place by a bandage that passes around the baby's body. Lay the child on its right side in a warm dry place until you have looked after the mother. The placenta (after-birth) will be expelled in a short time after the birth of

the child. Do not pull on the end of the umbilical cord, and do not tie anything to the cord. It is a mistake to think that there is danger of the umbilical cord passing back up into the mother's body and causing her injury. The one who is grasping the uterus should continue to squeeze it firmly. Do not use too much force. This will prevent bleeding, and will also help to expel the placenta.

As soon as the placenta is expelled, a heavy cloth bandage fifteen inches wide should be bound about the abdomen snugly, and fastened with pins or with strings sewed to the two ends. This serves as a broad belt to make pressure on the abdomen.

As soon as the infant is washed and dressed, it should, as a general rule, be put to the breast; for as soon as it begins to suckle, the uterus will contract and become small and hard. This tends to stop bleeding from the uterus. Before the abdominal bandage is applied, all the soiled clothing and bedding should be taken away, and the parts of the woman that have been smeared with blood should be washed well with warm water and then wiped dry. After this, apply a pad made of the absorbent cotton, or a pad made of several thicknesses of cloth (which has previously been boiled), over the external genitals. Fasten this pad in place by a tape on each end which can be pinned to the abdominal bandage in front and at the back.

The woman should lie quietly in bed for several days. The pad over the external genitals must be frequently changed, and the external genitals should be frequently bathed.

The woman should urinate in six or seven hours after the birth of the child. If she is unable to urinate after this length of time, a large towel folded in several thicknesses should be wrung out of hot water and applied over the pubic region and the external genitals. The bowels should move on the day after the birth of the child. If they do not, a cathartic should be taken.

After the birth of the child the mother can eat ordinary foods. It is well not to drink cold water or eat cold foods for a day or two. The mother should be given well-cooked, nourishing foods, such as rice gruel, eggs, milk, bread, potatoes, fish and ripe fruits.

CHAPTER 24

Accidents Occurring at Childbirth— Puerperal Fever

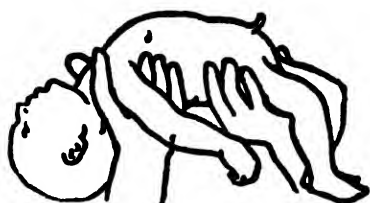
What to Do if the Child Does not Breathe

Normally the child gives a cry and begins breathing as soon as it is born. If the child does not give a cry and start breathing, but lies perfectly still, or only gasps feebly, it must quickly be made to breathe. Whatever is done to resuscitate the child, must be done quickly. The mouth and throat should first be wiped out with a finger covered with a thin, clean cloth. Cover the finger and the thumb with a thin piece of cloth, and grasp the baby's tongue. Pull gently on the tongue at the rate of ten times a minute. While this is being done, have some one slap the child on the buttocks with a cloth, or dip a cloth in cold water, and slap the child on the skin of the chest. These methods will often start breathing. As soon as the breathing starts wrap the child in a cloth that has previously been warmed before a fire.

If the above methods are used for a couple of minutes, and yet do not cause the child to breathe, then the umbilical cord should be quickly cut and tied, and artificial respiration used. The accompanying illustrations show how to give artificial respiration. The movements must not be too fast, not more than ten or twelve a minute. It is well to have a vessel (of a size large enough that the baby can be laid within it) of water at a temperature not lower than 105 degrees Fahrenheit. While using artificial respiration keep as much of the child's body as is possible immersed in the hot water. Do not lose hope too soon. If there are any signs of life, continue the artificial respiration for half an hour or longer.

Hemorrhage at the Time of Childbirth

There is always some hemorrhage during and just following the birth of the child, and at the time the after-birth comes out ; but such bleeding normally lasts for only a short



(1)

order to elevate them. Cause the uterus to contract by grasping the uterus through the abdominal wall, and squeezing it firmly in the hand. Do not relax your grasp until after the hemorrhage has stopped. A cloth wet in the coldest water obtain-

able should be applied over the pubic region and external genitals. Re-wet and apply this cloth frequently.

The cold causes the blood-vessels to contract, and so helps to stop the bleeding. Some colder water may be poured on the abdomen from a height of two or three feet. Put the baby to the breast at once; for as soon as it begins to

suckle, the uterus is stimulated to contract. If fluid extract of ergot can be secured, give one teaspoonful of it, and repeat the dose in three hours. After such a hemorrhage the woman must lie very quietly for a couple of days. Under no circumstances allow her to sit up or to get out of bed.

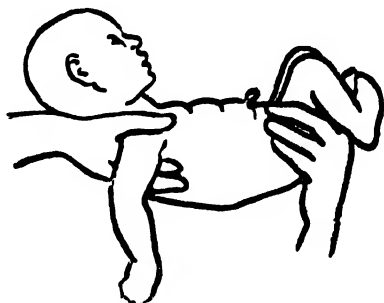
Fever Following Child-birth (Puerperal Fever)

A woman who has just given birth to a child always has a slight fever for a few days after childbirth. Such a fever is not dangerous, and seldom lasts more than three or four days.

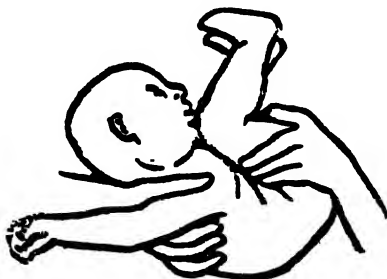
time. Should there be protruded bleeding, the woman begins to complain of feeling cold; she turns pale and feels faint.

Treatment

Place a roll of bedding under the woman's hips, in



(2)



(3)

But a fever that begins about the third or fourth day after childbirth is very serious. With the fever there is a very high pulse rate (the normal pulse rate is seventy-two beats a minute). There may be a chill at the onset. There is usually some pain in the lower part of the abdomen. The head aches. When the fever begins there is usually a decrease for a day or two in the amount of the discharges that have been coming from the uterus.

If care is taken to have everything clean at the time of confinement, puerperal fever will not occur; for this fever is due to germs that enter the uterus from the unclean hands of the midwife, or by using dirty cloths under the woman and about her external genitals to catch the blood and other discharges. If the midwife puts her hand or any kind of instrument into the woman's vagina, this will in most cases infect the uterus, and puerperal fever will be the result.

The first thing to do in treating this disease is to give a cathartic, such as Magnesium Sulphate (Epsom salts). Use fomentations on the abdomen every three hours. (See Chapter 20 for method.) Administer a hot vaginal douche every four hours. Use four quarts (4000 c. c.) of water at a temperature of 110 degrees F., and mix in this five teaspoonfuls (five drachms, 20 c. c.) of lysol. (For method of giving vaginal douche, see Chapter 20.)

If a competent physician is available, he should by all means be called to treat this disease; or if the woman can be taken to a hospital, this should be done.



CHAPTER 25

Care of Infants and Small Children

In a certain community, out of every one hundred babies born, seventy-one die before they are one year old. In an adjoining community out of every one hundred babies born only five die before they reach their first birthday. The reason for this wide difference in the two communities in the number of babies who die is that the parents in the one place do not give the babies proper care, whereas in the other community the babies receive proper care. Here in India a large number of the babies born do not live twelve months. This terrible loss of life is almost entirely preventable. It is preventable because it is due to lack of cleanliness at the time of the child's birth, to feeding solid foods to babies that are only a few months old, especially feeding them meat, raw melons, vegetables, etc., feeding them food which the flies have infected with disease germs—feeding the child at any time it happens to cry, allowing the baby to put any and every sort of dirty thing in its mouth. Since this high infant mortality is largely preventable, should not parents give careful study to the subject of how properly to care for small children?

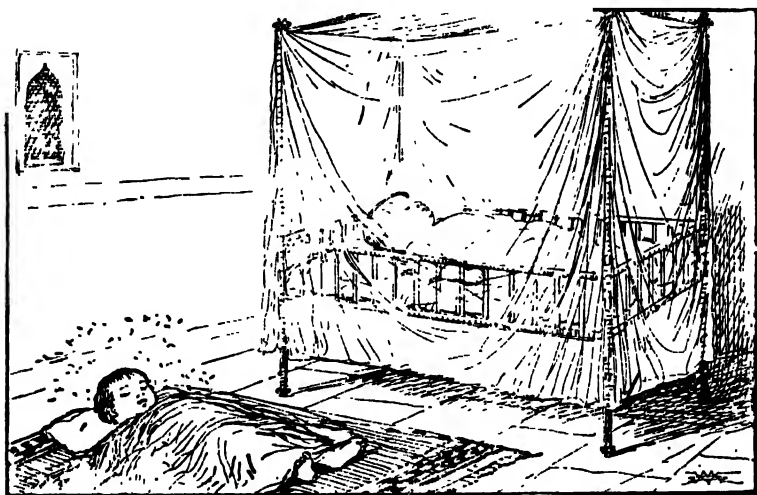
The Normal Child

The normal child at birth should weigh between six and eight pounds. The weight is often more than eight pounds. There is no gain in weight during the first week after birth. During the first six months the child should make an average gain of about four ounces a week. During the following six months the average weekly gain is slightly less than four ounces. During the second year the child should gain about six pounds in weight.

The time when the teeth should come in is mentioned in Chapter 4.

At the age of ten months a child should be able to stand on its feet, and by the time it is twelve months old the child should be able to walk a little.

When the child is born there are two "soft spots" (fontanel) in the skull, one just above the forehead and one in the back of the skull. The one at the back closes about the end of the second month. The one in front about the eighteenth month. If either of the "soft spots" (fontanel) remain after the child is two years old, it is usually due to the child not having secured sufficient food, or due to a disease called rickets.



Sleeping Under Net Keeps Child Happy and Well

The normal child will cry several times a day. Children will cry even if not hungry, and if nothing is the matter with them. If a child does not cry occasionally it is quite certain that it is sick. This is the way they exercise the muscles of the body. Since it is natural for the child to cry at times, the mother should not get into the habit of nursing it every time it happens to cry.

Care of the Child

Small-pox is a scourge that kills thousands of children every year. For this reason every child should be vaccinated before the age of three months. If small-pox is prevalent

in the community the child should be vaccinated a week or two after its birth (See Chapter 40).

During the early weeks of life a healthy child will sleep most of the time. A comfortable bed should be prepared for the child. A woven basket makes an excellent bed for a baby. This should be covered with a piece of mosquito net to keep the flies from alighting on the child's eyes and face. Flies cause sore eyes and pustules on the skin. They may also cause the child to have diarrhœa. Do not cover the



Child in Pen

baby's head when it is sleeping. A baby needs abundance of fresh air—so do not draw curtains about the bed where it sleeps, but keep the windows open or place it out of doors under a cover where it will be well shaded from the sun.

The small child must be kept clean. Bathe it frequently. Mothers who know how best to care for babies bathe them daily. If the whole body is not bathed daily, it will at least be necessary to bathe daily the parts of the child's body that become soiled by the urine or fæces.

Do not allow the child to lie or sit on the floor. The floor is a dirty place. Small children lying or sitting on the floor put their hands in their mouths; not only this but they often pick up pieces of dirt from the floor and place these in the mouth. It is in this way the child gets diarrhœa and

intestinal worms. Place a clean rice-straw or reed mat on the floor and keep the child on this. If the child is seven or eight months old it will creep about; and in that case make a small pen, place this pen on the mat, and keep the child in the pen.

Do not give the child a "comforter." When the child is five or six months old give it a spoon or some other hard, clean article to bite upon while it is cutting teeth. No matter what the article may be that is given the child to bite upon, it should be kept clean by frequent boiling.

Use clean cloths for diapers. The foul cloths often used not only have a foul smell but they irritate the child's external genitals.

It is necessary in the case of a boy baby to retract the foreskin of the penis frequently and keep the end of the penis clean. If the prepuce cannot be drawn back take the child to a competent physician and have the prepuce stretched so that it can be retracted. The crease between the labia of a female child's external genitals should also be looked after and bathed frequently.

In clothing a child the buttocks and external genitals should be covered. The custom of allowing children to go about nude or clothed in a way that exposes the buttocks and external genital organs is one that is not permitted in countries that are highly civilized. Clothing children in this way not only causes them to continually have "colds" but it leads also to moral degradation.

The Child's Food

In order to be healthy and grow rapidly a child must have food and plenty of it. The mother should eat liberally of good nourishing food in order that she may have good milk sufficient to supply the child's needs.

For the first two or three months the child should be nursed every two hours and not oftener. The last feeding at night should be about 10 P. M., and then it will not have to be fed again until morning. The time between feedings should be gradually lengthened. When the child is three or four months old—and from that time on—only feed it once every three hours and do not feed during the night. If a baby cries between feedings give it a little warm water that

has been boiled. A baby should be given a little water several times a day. The child that is not given water will frequently have a sore mouth.

The mother should keep the nipples clean by washing them frequently with a little clean water.

Previous to the age of six or eight months the child should not be fed anything but the mother's milk, for its digestive organs cannot digest rice, meat, and similar foods.

When the child is six to eight months old the mother, in case her milk is not sufficient, may begin to feed it a little gruel. Gradually, as the stomach becomes accustomed to the change, one or more feedings of browned flour gruel and one soft boiled egg may be given daily. The egg may be given by stirring a raw egg into the rice gruel while it is hot. The rice gruel should be cooked two hours.

The brown flour gruel is prepared by placing wheat-flour in a cooking utensil over the fire and stirring until it is a light brown colour. Then it is sifted and made into a gruel which is cooked for half an hour or longer. Hot goat's milk or hot cow's milk or some tinned milk may be added to the gruel. As the child grows older a little baked or boiled potato may be added to the diet.

Do not give a small child solid foods such as meat, vegetables, raw melons, and bananas. The child should not be given solid foods until it has teeth with which to chew the food.

The mother should never take the food in her own mouth first and chew it, then transfer it to the child's mouth. This is sure to result in the child having a sore mouth, or some disease of the digestive organs, or it may result in serious disease of the other organs of the child's body. For this reason never use this method of feeding a child.

The juices expressed from ripe fruits are excellent for small children. They not only help to nourish the child but prevent constipation and diarrhœa. Orange juice is one of the best and may be given daily. The fruit should first be dipped in boiling water for a few seconds before squeezing out the juice. Do not give the fruit at the same time the child is fed milk but about an hour after the feeding of milk.

If a mother who is nursing a baby takes a cathartic, some of the medicine will be in the milk that the child gets

and will purge the child. This shows that the mother must be careful not to use anything that will harm the child. If she uses tobacco or any intoxicating liquor it is sure to do great harm to the child. Anger will also have an influence on the mother's milk and sometimes a child becomes sick for no other reason except that its mother's milk has been made harmful by her having become angry.

Wet Nurse

In case a mother is sick after childbirth and unable to nurse her child the best thing to do is to secure a wet nurse. Care should be taken in selecting a wet nurse to see that she is not afflicted with tuberculosis or syphilis. In case the child does not thrive on the milk from one wet nurse it will be necessary to change and secure another one.

Artificial Feeding

In case a mother cannot nurse the child, and a wet nurse cannot be hired, then it becomes necessary to feed the child from a bottle. Cow's milk or goat's milk, if they can be secured fresh and clean, are the best substitutes for mother's milk. The difficulties in most warm countries are that there are few good milk cows, and that the milk is not clean, and even if it is clean it soon spoils because of the hot weather. There is also a great deal of difference in the quality of the milk that different cows give and the milk from one cow varies according to the food the cow secures. It is absolutely necessary where the weather is continually warm that the milk be secured within three or four hours from the time it comes from the cow. As soon as you secure the milk put it into a clean cooking vessel that has a cover. Set this in a larger vessel containing water that can be placed on the stove and kept there until it boils for at least half an hour. The milk in the smaller vessel does not boil, but it becomes hot enough to kill the germs. After heating in this way for half an hour, cool quickly. If in any case it is impossible to use this method, then the milk must be boiled for a few minutes. Then for a child under a week old, take eight ounces of milk and to this add

*NOTE.—Milk must not be left standing for any length of time in brass or copper vessels. The action of milk on the metal forms a poison that endangers the health. ED.

four ounces of boiled water and half an ounce of lime water. Then add two-thirds of an ounce of milk sugar and stir well. This will be sufficient for a day's feeding. After boiling it for a few minutes it should be kept in a large, clean bottle and must be kept in a cool place. Give the child one and one-half ounces of this every two hours. When the weather is very hot it will be necessary about noon to heat to the boiling point the milk that is to be used for the afternoon feedings. If this is not done the milk will spoil before night and make the baby sick.

In case it is impossible to secure milk sugar, half the amount of cane sugar (common sugar) may be used as a substitute for the milk sugar. Cane sugar sometimes disagrees with small children.

A child for the first three or four weeks of its life needs about two ounces of milk every two hours; so prepare as follows, sixteen ounces for a day's feeding:—

9½ oz. of milk; 6½ oz. of boiled water; 2 teaspoonfuls of lime water; and 1 oz. of milk sugar (½ oz. of common sugar). (For Lime water, see prescription No. 26, Chapter 50.)

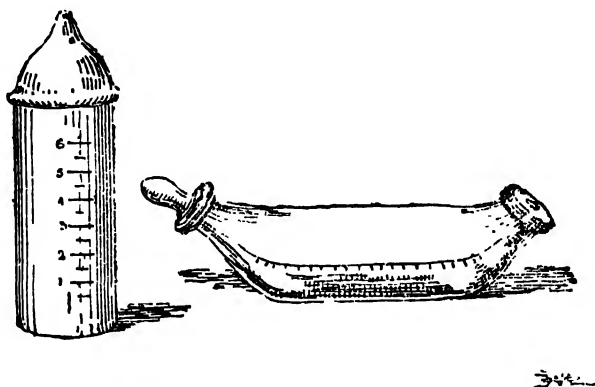
As the child grows older the amount of milk should be gradually increased so that by the time it is three months old it will need about thirty-two ounces of food in a day. To prepare this it will be necessary to double all the quantities given in the preceding paragraph.

A child from three months to six months old should have from five to seven ounces of milk at each feeding. It should be fed seven times a day, and will require forty to fifty ounces of food. To prepare 50 oz. of food, take 30 oz. of cow's milk, and 20 oz. of rice water, and 3 oz. milk sugar (or 1½ oz. of common sugar). A child from six months to twelve months old will require 50 to 60 oz. of food a day. To prepare 60 oz. of food, take 36 oz. cow's milk, 24 oz. rice water and 3½ oz. milk sugar (or 1¾ oz. common sugar).

The above gives only a general suggestion of how to prepare cow's milk so that it will be suitable for an infant. From the age of three months on, the amount of water added to the milk should, for a healthy baby, be less than the amounts stated above. If the milk is of a poor quality, it may not be necessary to add any water to the milk. It is well, in case the baby does not thrive, to secure, if possible

the advice of a competent physician as to the way to prepare food for the child.

Boiling water should be poured on the top of the tin of milk before it is opened. A very small opening should be made. After pouring out the amount of milk needed, a clean bowl should be turned mouth down and be placed over the tin of milk to keep dust from getting into the milk. During hot weather the unsweetened milk after being opened cannot be kept longer than one day. Tinned milk should always be kept in a cool, clean place. (See Note, page 139.)



Two patterns of Sanitary Feeding Bottles

The illustration shows the proper kind of bottles to use for feeding the child. The bottle must be kept clean. Each time before using remove the rubber nipple and wash the bottle well inside and outside. Wash until no trace of milk is seen in the bottle. Also wash the rubber nipple well. Wrap the bottle and the rubber nipple in a thin clean cloth; place in a vessel containing enough cold water to cover the bottle and heat till the water boils—the water should be kept boiling for several minutes. If water that has been boiled is used to wash out the inside of the bottle and the rubber nipple each time after using, and if the bottle is kept wrapped in a clean cloth, then it will only be necessary to boil it once a day. In the case of many children it is practicable when they are ten or eleven months old to begin feeding them

with a spoon. But if a spoon is used care must be taken to have the food, bowl, and spoon very clean.

Constipation

A healthy baby has usually from one to four bowel movements daily. After the second or third month there are as a rule only two movements daily. In case the bowels fail to move at least once or twice daily the child should be treated for constipation. Constipation in a small child should be looked after without delay, for if not it will result in the child becoming seriously sick. One or more of the following methods may be used:—

1. Increase the amount of fat (oil) in the food.
2. Give the child plenty of water to drink. The water should be warm and should have previously been boiled.
3. Give orange juice or some other kind of fruit juice daily.
4. Use a piece of hard, white soap, cut it into a cone shape two inches long and about the size of a lead pencil at the small end and a little over half an inch in diameter at the larger end. Every morning at a regular time, if there is no natural movement of the bowels, this piece of soap should be oiled with a little vaseline and inserted half of its length into the anal opening; hold it there for a few seconds and then allow it to be expelled— a free movement of the bowels will follow in most cases.

Diarrhoea

If the child's bowel movements are very frequent and watery and of a foul odour, it has diarrhoea. In most cases of diarrhoea it will be necessary to stop the ordinary food for a day and give the child nothing but warm boiled water and rice water. The rice water is made by boiling a small amount of rice in a large amount of water until the grains are well broken up, and then pouring through a thin cloth to strain out everything but the watery part. All food and drink given the child must be clean. If this fails to stop the diarrhoea it will be necessary to use the methods outlined in the following chapter.

CHAPTER 26

The Diarrhœas of Infants and Small Children

There are several diseases in which diarrhœa is the most prominent symptom, such as the ordinary diarrhœa, acute indigestion, and cholera infantum. But since the cause and treatment of all are very similar, they will be discussed together in this chapter.

Some forms of diarrhœa cause the death, yearly, of tens of thousands of infants. Diarrhœa is caused by germs. The digestive organs of a small child are so feeble that they are unable to destroy these germs. It is evident to all that it would take a much smaller dose of a poison to kill a baby than to kill a grown man. Since this is true, eating a small amount of unclean, or spoiled, or indigestible food, that might cause only a slight diarrhœa in an adult will produce a very serious diarrhœa in an infant, and may even kill it. Many people fail to appreciate the fact, and so they carelessly give to very small children every kind of food, thinking that the child can eat any food that the adult eats.

Another reason why diarrhœa is so common in small children, is that they are fed mainly on milk, or some kind of gruel, in which disease-producing germs grow very rapidly.

A third reason that accounts for the commonness of diarrhœa among small children, is that children are easily chilled, and a chill almost always results in the child's having diarrhœa. A small child is easily chilled, even in the hottest weather, and for this reason should always have on at night some kind of garment that covers the abdomen.

Diarrhœa quickly kills small children because they have very little vitality. In diarrhœa the food does not digest, but passes down through the alimentary canal without any of it entering the blood to give strength and heat to build up the body. Moreover, in diarrhœa the child not only does not derive any sustenance from the food it eats, but in addition

loses of lot of fluid from its body. This is what causes the fæces in diarrhœa to be so thin and watery.

In view of these facts, the diarrhœa of small children should not be looked upon as unimportant, but prompt measures should be taken in every case of loose, watery bowel movements.

Preventing of Diarrhoeas

A knowledge of the reasons why diarrhoeas are so common in small children, should enable intelligent parents to prevent them.



The Right Way

The Wrong Way

Unclean Surroundings

In the first place, the child must not be allowed to lie, sit, or crawl about on the dirty floor or in the street. Floors, especially earth or brick floors, are very filthy. They are covered with the filthiest kind of dust and dirt that has been brought it on the shoes from the street and from the latrines. If any animals have been in the house, these have added to the filth on the floor.

Children reared in a dirty house will be sure to have frequent attacks of diarrhœa. The house should be kept

clean by sweeping the floor,—sweep the corners and under the furniture. If it is an earth or brick floor, scatter powdered lime along the edges of the walls and under the furniture. Do not allow chickens or other animals in the house. Never allow the children to urinate or defecate on the floor. If the floor is up off the ground, then the ground beneath the floor should be kept clean: wash-water and slops should not be thrown under the floor. The court-yard should be kept clean by frequent sweeping. Dung-heaps, piles of garbage, and foul water-drains in the court-yard—all these serve as breeding-places for millions of disease-producing germs. The small children who crawl and run about in the court-yard, get all manner of disease-germs in the body.

Flies Spread Diarrhœa

Flies kill babies. They do it by carrying filth from the dung-heap, and garbage-pile, and every kind of filthy place, to the food that the child eats. When food has been prepared for a child, it should be protected from flies; for when a fly alights on the nipple of a baby's feeding-bottle or on the food the baby is to eat, it leaves there filth and poisonous disease-germs. The child swallows these, and as a result quickly develops a severe diarrhœa. Further instruction about flies and how to destroy them is given in Chapter 48.

Unclean Milk and Dirty Feeding Bottles

The necessity of heating milk in order to kill the disease-germs has been mentioned in Chapter 25. If the child's food is made clean by boiling, and then kept in a covered utensil, and if the feeding-bottle and nipple are kept clean by frequent boiling, a large amount of diarrhœa and other diseases will be avoided.

Improper Food and Irregular Feeding

To give a child sweets, confectionery or cakes, may stop it from crying for a few minutes; but the pain and diarrhœa that these articles are almost sure to cause will later lead to many hours of crying, and will often result in killing the child. Flies like sweets and confectionery, and they alight and eat, and leave on these sweets the filth out of their bodies and also the filth that was clinging to their feet and legs.

Sweets, confectionery, and all such articles, are made filthy and dangerous to health not only by the flies, but by the dust from the street and from the filthy hands of the vendor. The only safe rule is that everything of this nature bought from the vendors must be boiled before it is given to the child; and if it cannot first be boiled, then never feed it to the child. Such articles are doubly harmful when they are given to the child at irregular times. Every child should be fed at fixed times, and should not be allowed to eat between the times of its regular meals.

Serious diarrhœa of a nursing infant may be caused by some sickness of the mother, or by the mother's having taken some medicine or some kind of food or drink that makes a change in the quality of her milk. In any case of diarrhœa in a breast-fed child, it will be necessary, in order to treat the child successfully, to find out if the mother is sick, or if she has used some kind of medicine or food that could cause the child's diarrhœa.

Treatment of the Diarrhœas of Small Children

There are three things that must be done, if diarrhœa is to be successfully treated. These are:—

1. Withhold all milk food until the diarrhœa has been checked.

2. Give water freely.

3. Cleanse the alimentary canal.

There are a few other methods of treatment that it may be necessary to use, in addition to the three just named; but the three that have been named are of primary importance.

If the child who is afflicted with diarrhœa, has been taking milk, the use of milk must be stopped for at least one whole day. The stomach and intestines of a child with diarrhœa cannot digest milk. The milk, not being digested, remains in the alimentary canal, and serves as food for the diarrhœa germs, thus leading to the production of more poisons.

In the place of the milk food the child has been taking, give it rice water (see Chapter 50, prescription No. 25), egg-albumin-water (egg-white; see Chapter 47), and a little orange-juice. The child should not be given its milk food again until the diarrhœa is checked, and even then the milk

should at first be given in much smaller quantities than the child has been taking.

Fluids must be given freely, because in diarrhœa every time the bowels move the child loses from its body a large amount of fluid. This fluid comes out of its blood, and so an abundance of warm boiled water must be given. Rice-water can be given part of the time instead of plain water.

The vomiting and diarrhœa show that the body is trying to get rid of something that is harming the alimentary canal. The decomposed or indigestible food to the child's alimentary canal is causing diarrhœa and vomiting, just as pepper in the eye causes the eye to produce tears and blink rapidly in order to get rid of the pepper. In order to help clean out the alimentary canal, give every half hour as much boiled water as the child can possibly be induced to swallow. This water passes down through the alimentary canal, and helps in flushing it. A half teaspoonful of salt should be added to each pint of water. Give the child an enema (see Chapter 20) of this same saline solution after each bowel movement. The water for the enema should be hot (105 degrees Fahrenheit). At the beginning of the treatment, give a teaspoonful of castor-oil. If the child is four or five years old, give two teaspoonfuls of castor-oil. Apply fomentations to the abdomen every three hours. The child must be kept lying quietly in bed. Under no circumstances allow it to get up; for any muscular exertion will aggravate the disease.

After using the above-outlined treatments for a day, it is well to try to check the diarrhœa by giving a warm enema every three or four hours, and a teaspoonful of prescription No. 7 (b) every four or five hours. To make the starch solution for a starch enema first mix a few spoonfuls of starch (either corn starch, wheat starch, or rice starch) with a little cold water, then add a glassful of water and bring to a boil. Then cool. The starch solution should be quite thin. The fomentations should be continued the same as during the first day of the treatment. Less water should be given than was given the first day.

It is necessary to keep some light covering over the abdomen lest the child becomes chilled and the diarrhœa be aggravated.

Bathe the child's body frequently, and keep the bed clean. The child should be covered with a mosquito-net to keep off the flies. Do not allow the other children in the family to use any of the spoons or dishes used by the sick child. All dishes and spoons used by the patient should be boiled after using.

Diarrhœa is caused by irritating or poisonous materials in the bowel. The medicines advertised in the newspapers should never be given; for while they may stop the loose bowel discharges very quickly, yet they do not remove the cause. The poisonous matter which caused the diarrhœa, still remaining in the bowels, will soon cause the recurrence of the diarrhœa in a more serious form than before. The only way to cure the disease is to get rid of the poisonous matter that is causing the trouble.

NOTE:—TABLE OF PROPORTIONS FOR MIXING TINNED MILK AND WATER.—In case it is impossible to secure either cow's milk or goat's milk it may be necessary to use the tinned condensed milk. The tinned milks are of two kinds, the sweet, such as Nestle's Brand, Eagle Brand, or Milkmaid Brand, or the unsweetened milk. When used for feeding an infant, the two kinds, the sweet and the unsweetened, should be mixed according to the following table given in the Chinese translation of Dr. Holt's book. "The care and Feeding of Children."—

| Age | 2 Days | 3 Days | 4 Days | 6 Days | 7 Days | First to Fourth Week | Fourth Week to Third Month | Third to Sixth Month | Sixth to Ninth Month | Ninth to Twelfth Month |
|--|---------------------------|---------------------------|-----------|-----------|------------------------|-------------------------|-------------------------------|-------------------------|-------------------------|---------------------------|
| Proportion of sweet- ened milk or | 1 Part | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Proportion of Un- sweetened milk | 3 Parts | 3 | 3 | 3 | 3 | 3 | 3 | | | |
| to Boiling Water | 60 Parts | 50 | 40 | 30 | 24 | 20 | 16 | 12 | | |
| Rice Water (Prescription 25) | | | | | | | | 12 | 12 | 12 |
| Amount to be given at each feeding | $\frac{1}{2}$ to 1 oz. | $\frac{1}{2}$ to 1 oz. | 1 oz. | 1 oz. | 1 $\frac{1}{2}$ oz. | 1 $\frac{1}{2}$ oz. | 2 oz. | 3 to 4 oz. | 5 to 7 oz. | 7 to 9 oz. |
| Frequency of feed- ings every | 2 hrs. | 2 hrs. | 2 hrs. | 2 hrs. | 2 hrs. | 2 hrs. | 2 hrs. | 2 $\frac{1}{2}$ hrs. | 3 hrs. | 3 $\frac{1}{2}$ hrs. |
| Total number of feedings for on day | 6 or 8 | 8 | 10 | 10 | 8 or 10 | 8 or 10 | 8 | 7 or 8 | 7 | 6 |

CHAPTER 27

Some of the Common Diseases of Infants and Children

Sore Mouth

Sore mouth is common in nursing infants where there is neglect on the part of the mother to keep the nipples or the nursing-bottle clean. The mouth should be cleansed before and after feeding, by means of swabbing with a piece of gauze or thin cloth wrapped about the finger and wet with boric acid solution. (Prescription No. 1.) In some cases of sore mouth in children a year old or over, the best results are secured by cleansing the mouth with a saturated solution of potassium chlorate. In case there are small white ulcers in the mouth, apply burnt alum. (Prescription No. 8.) Where there is persistent trouble, it is advisable to consult a competent physician.

Colic

Attacks of colic come on suddenly with loud crying which waxes and wanes as the pains increase and decrease. The stomach and bowels are full of gas, and so the abdomen is tense and hard. The thighs are drawn up over the abdomen during the attack. Colic usually occurs in artificially-fed babies, and may be caused by too frequent feeding or the feeding of food which is too sweet or is not of the proper quality. Feeding small children any food that is not thoroughly cooked will often cause colic.

Treatment

Colic can often be relieved by giving warm water with a spoon or from a bottle. Heat cloths hot, and lay them on the abdomen. If this does not relieve the colic, then give the child an enema of one pint of water at a temperature of 105 degrees Fahrenheit, to which one teaspoonful of salt and two spoonfuls (1 oz.) of glycerine have been added. The

enema may not clean out the upper portion of the bowels; therefore a dose of castor-oil should be given in addition to the enema. If the colic recurs frequently, a teaspoonful of prescription No. 7 (b) should be given twice a day for two or three days.

Since improper or unclean food probably caused the colic, it is only by giving attention to feeding clean, good food, that further attacks can be avoided.

Convulsions

There are many conditions that may cause convulsions in a small child, such as improper or indigestible food, rickets, intestinal parasites (worms), malaria, and cholera. When an attack of convulsions comes on, there is usually twitching of the muscles of the face and hands, sudden paleness of the face; the eyes are fixed and turned upward, the head is thrown back, the hands are clenched, and the legs are drawn up spasmodically.

Treatment

Prepare a hot bath (temperature 105 degrees Fahrenheit) as quickly as possible. Place the baby in the hot bath, and apply to the head a cloth wrung out of cold water. Since the convulsions are usually caused by some decomposed or indigestible food in the bowels, it is always well, after the child has been in the hot bath a few minutes, to give it a warm enema, and a teaspoonful or more of castor-oil. Greater care must be taken in the preparation of the food given the child; for convulsions are in most cases due to spoiled or indigestible food. It may be necessary to stop the use of cow's or goat's milk, and to buy condensed milk or some kind of prepared food. It will also be necessary to give close attention to the condition of the bowels; constipation must be avoided.

Rickets

This is a bone disease that is usually seen in artificially-fed children. It usually comes on when the child is from six to fifteen months old. The "soft spots" (fontanels) do not close up when they should. The bones of the legs become crooked. The abdomen is usually enlarged. The child is weak and undersized.

Treatment

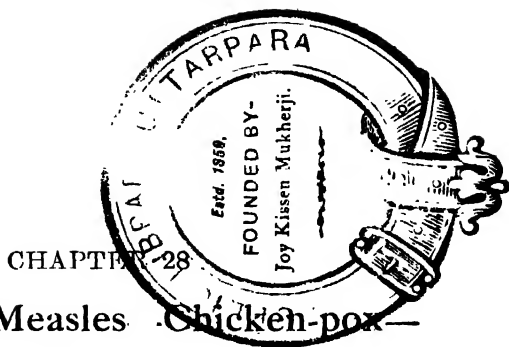
Since the disease is due to not receiving the right kind of food—food which contains the material that the body requires to build bones—the first thing to do is to give better milk. Give some fruit-juice several times daily. For children a year old or over, give eggs and fruit juices, in addition to milk.

Coughs and Colds

The majority of small children are troubled a great deal with coughs and colds. Coughing may be due to many things, so it is foolish to think that any one medicine can cure every kind of cough. Most of the medicines advertised in the newspapers to cure cough, contain opium or morphine. They are very dangerous, and should never be given to a child. The proper treatment of a cough is to remove the cause. It may be due to adenoids or enlarged tonsils, or a long, soft palate. In such cases, the thing to do is to go to a competent physician and have the adenoids or tonsils or soft palate treated. The cough may be due to a cold, or it may be due to tuberculosis of the lungs. In every case, the treatment should be aimed at the cause. If the cause cannot be known definitely, the steam inhalation method mentioned in chapter 50 may be used with good success.

Colds and Their Treatment

First empty the bowels by the use of an enema (see Chapter 20) of warm water. In addition to the enema, give also a teaspoonful of castor-oil. (The child will take the castor-oil more readily if it is given in some orange-juice or other fruit-juice.) Give the child something hot to drink,—either a cup or two of some hot fruit-juice, preferably lime-juice, or some hot soup. Put the child to bed. He should be in a room where the windows are open to allow free ventilation. Restrict for a few days the amount of food given. After the child perspires, the body should be sponged off and thoroughly dried. If the cough continues, it will be necessary to use fomentations (see Chapter 20) on the front of the chest for fifteen minutes, twice daily. It is important that the treatments should be persevered in until the cough is cured. By failure to treat a “cold” energetically, it may pass into a much more serious disease of the lungs.



CHAPTER 28

Diphtheria—Measles—Chicken-pox— Mumps

Diphtheria

- This is one of the most dangerous diseases that afflict children. It is caused by the diphtheria germ. Diphtheria germs not only make a sore spot where they grow in the throat and nose, but they also make a poison which injures the heart.

Diphtheria is a contagious disease. Children catch it from others who have the disease, or from those who have had it recently and still carry the disease-germs in the throat, and spread the germs by coughing and sneezing.

Children may get diphtheria from spoons or cups that have been used by others and have not afterward been washed with boiling water. Toys that have been used by other children, and especially whistles and such articles as children put in their mouths, often serve as agents in spreading this disease. Putting the fingers and any and every kind of article, such as pencils, money, and string, into the mouth, is a filthy habit that may result in the child's contracting other diseases besides diphtheria. Begin while the child is young, and do not allow it to form the habit of putting things into the mouth.

When a child with diphtheria coughs or sneezes, he throws myriads of diphtheria germs out into the air of the room. For this reason, if another child enters the room, he is almost absolutely certain to catch the disease. If there is diphtheria in the community, keep your children away from the homes of those who have the disease. It were better, when diphtheria is prevalent, to keep the children at home, and not allow them to go on the street and play with other children.

Symptoms

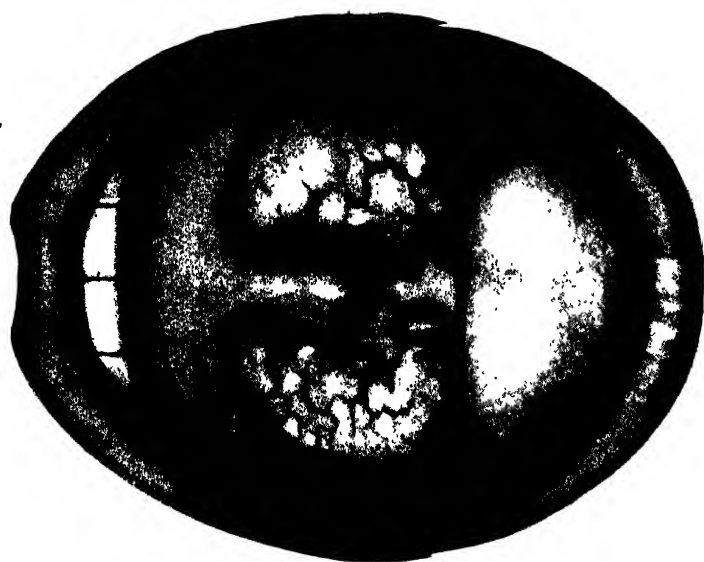
The first symptom of diphtheria usually noticed is sore throat. This appears in from two to seven days after exposure. If there is diphtheria in the neighbourhood, and your child complains of sore throat, do not neglect it, but look in the throat at once. It may be necessary to use a thin, flat piece of wood or bamboo to press the tongue down so that one can see into the throat.

At first the throat may show only a deep red colour, but by the third day a greyish skin will be seen in the tonsils and about the tonsils. (See the accompanying illustration.) The child also has difficulty in swallowing, and there is some fever.

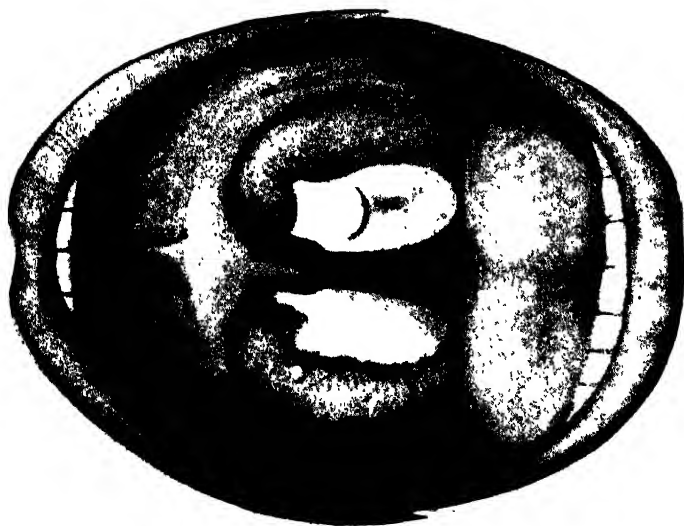
Treatment

As soon as it is known that the child has diphtheria, a competent physician should quickly be called. Do not delay, thinking that you can cure the disease. There is only one medicine that will cure the disease. It is called diphtheria anti-toxin. This is a serum (medicine) secured from the blood of the horse, and this serum opposes the poisonous diphtheria germs. The earlier this medicine is used, the better. If it is used on the first day of the disease ninety-nine out of one hundred cases will recover. If it is not used before the third or fourth day of the disease, only seventy-five to eighty-five out of one hundred will recover; and if not used at all, over half of the children who contract diphtheria will die.

The medicine is a fluid, and must be injected under the skin by means of a hypodermic needle. It can be done properly only by a physician or a skilled nurse. In some places it may not be possible to secure a physician; in that case the parents had better attempt to use the medicine rather than allow the child to die. The hypodermic needle and the anti-toxin can be secured from dispensaries that deal in medicines. The method of using it is as follows: The hypodermic needle must be boiled for a few minutes. Then, having kept the little vial of anti-toxin in alcohol for a few minutes, break off the end of the little vial containing the anti-toxin and draw the anti-toxin up into the needle. Wash thoroughly, with soap and hot water, the skin on the outer side of the arm a few inches below the shoulder. After drying the skin, apply



Throat in Tonsillitis
-see page 184-



Throat in Diphtheria

some tincture of iodine. Grasp the skin between the fingers and pull up a fold of skin. Hold the hypodermic needle parallel to the surface of the skin, and insert the needle for an inch in such a way that it only goes through the skin into the space between the skin and the underlying flesh. Inject from 3,000 to 5,000 units of the medicine. If marked improvement is not seen in about twelve hours, another injection of from 3,000 to 5,000 units should be given. In severe cases a third dose may be required.

As soon as it is known that the child has diphtheria, put him in a room by himself, and absolutely forbid other children to enter that room. No one but the two or three who are caring for the child should enter the room. The one who enters the room to nurse the child, should have a long, loose garment to put on over the other clothing and worn while in the room. When going out, remove this garment, and leave it in the room. Always wash the hands and face before leaving the room to go out where you will meet other people or where you will handle anything which others in the family are using. Do not allow any toys or clothing to be taken from the room and used by others.

The eating utensils used by the sick child should be kept in the sick-room and washed with boiling water each time after using. Feed liquid foods.

The child should blow the nose and expectorate into pieces of paper or old cloth, which should afterwards be burnt.

It is necessary to keep the child lying quietly in bed. Do not allow it to get up and move about, until you are sure it is well; for moving about may cause sudden death, on account of the heart's having been injured by the poison.

The throat should be swabbed every hour with prescription No. 10 or No. 9. (See Chapter 50.) Prescription No. 10 should be gently injected into the nose by means of a small rubber syringe. When treating the child's throat or washing its mouth, the nurse should wear over her own nose and mouth a mask made of several thicknesses of clean cloth.

Fomentations to the sides and front of the throat relieve pain. The child should be given a warm enema once daily. Give the child all the water and fruit juice that it can be induced to take.

As soon as one child in a family contracts diphtheria, all the other members of the family should at once receive injections of anti-toxin; for it is found that this medicine which cures diphtheria also prevents one from contracting the disease. Give 500 to 1,000 units for each child and 1,000 or 2,000 units for each adult. If after a month's time diphtheria is still prevalent in the neighbourhood, it will be necessary to repeat the injections.

As soon as the child recovers from diphtheria, the clothing, bedding and room must be disinfected, in order to prevent others from contracting the disease. (For method, see Chapter 47.)

There may be times when diphtheria is epidemic, and yet it will be found impossible to secure anti-toxin. Much may be done to prevent contracting the disease, by using thrice daily a gargle made by adding four teaspoonfuls of salt to a pint of water. In the case of small children, it will be necessary to make a cotton swab, by twisting cotton about the end of a pencil, and after wetting with the salt water use as a swab for the throat.

Measles

Measles is one of the very common contagious diseases. It is often regarded as a disease of little importance; but every child who has measles should be well cared for lest he has some very serious disease following the attack of measles.

Measles is a disease that spreads very rapidly. If a child comes into a room where another child has measles, or comes near the one who is sick with measles, it will usually come down with the disease in about ten or twelve days. The first symptoms are a cold in the nose, running of the nose, redness of the eyes, and some fever. The rash appears on the third or fourth day of the disease. Little red spots like flea-bites appear on the face; the rash spreads, and in a day or two covers the whole body. The spots on the face grow larger, and fuse, making large blotches.

The serious conditions to be feared following measles are ear-disease and disease of the lungs.

Treatment

There is no medicine that cures measles. The disease will get well of itself after the rash appears, providing the child is well nursed. The child should lie on a clean bed in a clean room. It must be kept warm; for when a child has measles, there is great danger in its becoming chilled. If it becomes chilled, serious lung trouble is liable to result. No other children should be allowed to enter the room, lest they contract the disease also.

In most cases it will not be known what disease the child has until after the rash appears. In that case give the child a couple of teaspoonfuls of castor-oil and a hot enema (108 degrees Fahrenheit). The mouth should be swabbed out several times a day with a mouth-wash (use prescription No. 9, Chapter 50). The inside of the nose should be kept clean by spraying it several times daily with salt solution (one-teaspoonful of salt to one pint of water). If an atomiser is not available, then the salt solution must be slowly injected into the nostrils with a small syringe. If the mouth and nose are kept clean by the use of these methods, the serious complication of broncho-pneumonia (a dangerous disease of the lungs) will be avoided. Deafness will also be avoided. In case there is any pain in the chest and some cough, apply fomentations to the chest twice daily.

The eyes must be well cared for during measles. The room should be darkened to protect the eyes. Provide boric acid solution (use prescription No. 1), and wash the eyes several times a day. See Chapter 44 for full instruction about caring for the eyes when they become red and inflamed.

It should be borne in mind that measles is a serious disease, and causes the death of a very large number of children. When it is learned that measles is in a community, parents should try to keep their children from going to places where they will be exposed to the disease. In every case where one child in a family has the measles, keep him in a room by himself in order to prevent other children in the family from contracting the disease.

Chicken-Pox

Chicken-pox is a contagious disease, but as a rule it is not very serious. There is an eruption which first appears

on the trunk of the body, the scalp or the wrists. The eruption somewhat resembles small-pox. The treatment consists in giving the child as much water as it will drink, and cleaning out the bowels with a daily warm enema. (See Chapter 20.)

When the eruption has reached the pustular stage, vaseline should be smeared over the pustules (see prescription No. 11). Avoid scratching the pustules, lest scars be produced. The eyes should be washed three times a day with prescription No. 1.

Mumps

Mumps is a disease in which the first symptom usually is pain below the ear. There may be slight fever. The pain below the ear is aggravated by chewing or by swallowing. Slight swelling can be noticed below and in front of one or both ears. The swelling increases, and may become very large. In a few days the swelling begins to go down, and usually disappears in about a week.

The treatment consists in being careful that the child shall not become chilled and catch cold. Wash the mouth frequently with prescription No. 10. (See Chapter 50.) Fomentations over the swelling relieve the pain. The patient should be kept away from others who have not had mumps.



CHAPTER 29

Indigestion—Dyspepsia—Constipation— and Hemorrhoids (Piles)

There are very few people who at some time or another are not troubled with one or all of these ailments. While not as serious as typhoid fever or malaria, yet they cause an immense amount of suffering, and prepare the way for numerous other serious diseases.

Symptoms and Causes of Dyspepsia

The commonest symptoms of dyspepsia are discomfort or pain in the stomach, heartburn, tenderness over the stomach, badly coated tongue, acidity, or belching of gas. There may also be headache and vomiting. Sometimes there is a pain in the back between the shoulders. The pain in the stomach is usually temporarily relieved by taking food, only to return later with greater severity. The liver does not act properly, and as a result the stools are usually light coloured.

The causes of dyspepsia are too numerous to be mentioned in detail. One of the commonest causes is eating too fast. Fast eating means that the food is not well chewed but is swallowed in large lumps, or masses. The stomach in its efforts to digest these large lumps produces an undue amount of very acid gastric juice, resulting in heartburn and belching of a sour fluid. Most people do not cook food until thoroughly done. These partially cooked foods cause a great deal of dyspepsia. Over-eating is another common cause of dyspepsia. To eat too much of even good food will cause indigestion, while eating too much coarse food is the cause of much dyspepsia among the poor classes. The use of improper food such as food preserved in salt or sugar, or foods in which there is mixed ginger, pepper, curry or other hot substances, injures the stomach and unfits it to perform its work.

The habitual users of intoxicating liquors are all dyspeptics, they have poor appetites, especially for the morning meal. They complain of pain in the stomach, and frequently vomit after eating. Tobacco-using injures the stomach almost as much as alcohol, and should be included among the common causes of dyspepsia.

In numerous instances, especially among officials, students, and business men, the cause of dyspepsia is the lack of daily muscular exercise. Man's Creator declared, "In the sweat of thy brow shalt thou eat bread." The health of the body depends upon food and exercise. He who eats and does not exercise is sure to suffer more or less with impaired digestion.

In addition to the causes given above, mention should be made of irregularity in eating, *i. e.*, eating between meals and eating heartily at a late hour at night, both of which will sooner or later led to indigestion. For further details as to the foods that are best and those that harm the body see Chapter 5.

Treatment

To cure any case of dyspepsia it will be necessary first to remove the cause. It should be remembered that simply to take some one of the numerous medicines advertised may stop the pain temporarily but it will by no means remove the cause. For this reason all such medicines must be avoided. Try to find out which of the causes mentioned above is responsible for your dyspepsia. It will be necessary to stop the use of tobacco and intoxicating liquors of all kinds. A sick stomach can not do as much work as a healthy one, for this reason it will be necessary to reduce the amount of food taken. Only such foods should be eaten as digest easily. The following is a list of easily digested foods: twice-toasted wheat bread, well-cooked congee, steamed browned rice, either soft-boiled, poached, or jellied eggs, and peaches, pears, and guavas, eaten either cooked or uncooked.

It is well to abstain from the use of sweetmeats. Fried food should be avoided.

If the dyspepsia is acute, it is well to take a dose of cathartic and abstain from food for twenty-four hours.

Refraining entirely from food for twenty-four hours will not harm anyone who is not already very much weakened by disease. Fasting is a great help in the cure of any dyspeptic condition, for it gives the digestive organs a chance to rest.

In cases where there is heartburn and the belching of sour fluid, it will be necessary to eat very sparingly of starchy foods, and to eat fats and oils instead, to take the place of the starch. If the heartburn and belching of sour fluid is distressing, take 10 to 20 grains of prescription No. 12. (Chapter 50.) Drinking a small amount of very hot water in the morning upon rising, and again at night just before retiring, will help to heal the diseased condition in the stomach. In addition to this, fomentations for twenty minutes, two or three times a day, when there is pain over the stomach, will also be found to be a valuable treatment.

In all forms of dyspepsia the importance of eating slowly and chewing each mouthful thoroughly cannot be over-emphasized. In order that the digestive organs may do their work well, it is necessary to take daily muscular exercise. The skin should be kept clean by frequent bathing.

The constipation that usually accompanies dyspepsia can be treated according to the instructions in the following section. The treatment outlined above will not cure every case of dyspepsia. It will be necessary at times for the patient to find out what kind of food best agrees with him, and if it is a good nourishing food, to limit himself to that food.

Constipation

There should be one or more movements of the bowels daily. When the bowels move but once in two or three days this is a condition designated as constipation. Constipation is present also in the case of those who are obliged to use a cathartic daily in order to cause a movement of the bowels. Other symptoms of constipation are a heavily-coated tongue, foul breath, occasional headaches, especially in the top and back part of the head, and at times a feeling of discomfort in the abdomen.

The causes of constipation are sedentary habits and the use of tea, coffee, tobacco, and intoxicating drinks. In some cases there may be abnormal conditions in the abdomen, which cause constipation. The constant use of cathartics will

result in a very severe form of constipation. Another cause of constipation, especially in women, is neglect to evacuate the bowels when the desire is felt. In course of time the presence of faecal matter in the lower end of the bowels fails to lead to the desire to go to stool and a very obstinate form of constipation results.

Treatment

The cure of constipation in most cases consists chiefly in correcting wrong habits. Proper diet and daily muscular exercise will do more to effect a cure than all the widely-advertised medicines. Daily exercise should be taken, either walking, working in the garden, or some other form of muscular exercise. A special form of exercise of great value is to lie down flat on the back, with a small folded blanket or similar article under the small of the back, and raise both legs to the perpendicular. Repeat this twenty or thirty times every morning. Take a deep breath each time before the legs are raised, and each time after the legs are lowered take a deep breath and make a slight pause. Do not repeat the leg raising too rapidly. The legs should not be bent at the knees. Lower the legs slowly and do not allow them to drop down. This exercise strengthens the muscles of the abdomen and in this way aids in curing many cases of constipation.

Drinking slowly a cup of hot or cold water in the morning on rising is helpful in many cases. Most people do not drink enough liquid daily and their constipation may be entirely due to this cause. For this reason all who are troubled with constipation should make it a rule to drink five or six glasses of water daily in addition to the liquids taken with their food at meal time. Fruit juice may be used as a substitute for a portion of the water.

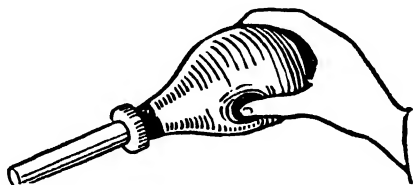
In some cases of constipation the faeces are of a whitish colour. This is evidence that the constipation is due to the liver's failing to do its work. To stimulate the liver apply fomentations over this organ for fifteen or twenty minutes twice a day, and take one quarter grain of ipecac every morning.

It is best not to get into the habit of taking cathartics to relieve constipation, for if one begins using pills it is generally found necessary to continue their daily use. In the

use of such cathartics a very injurious habit is formed. In place of medicine take daily half an ounce to an ounce of agar-agar. It may be baked a short time in the oven, but it should not be boiled before being eaten.

The enema will serve to clean out the bowels at any time, but it is not best to use the enema daily. A good plan is to use for one or two days an enema of a quart or more of warm water to cause a bowel movement, then on the third day use a small amount of cool water as an enema, and on the following day a still smaller amount of cool water. In this way in the course of a week or two the bowels will move of themselves without it being necessary to inject any water.

A method that has proven to be very efficacious in the treatment of ordinary constipation is to secure a small rubber syringe. (See accompanying illustration.) Use this to inject into the



lower end of the bowel a couple of syringefuls of cool water—use clean boiled water. After injecting the water wait for a few minutes and then go to stool. The small amount of cool water is usually sufficient to stimulate the bowel so that an evacuation results. This method is much easier to use than the enema and is often just as effective.

In the treatment of every case of constipation the patient should understand that it is very important to have a regular time to go to stool. The best time is in the morning just after breakfast. Every day at this time it is well to go to stool, even though no desire is felt to defecate, for in a short time the bowels will form the habit of evacuating at this time.

In case it is found necessary to use a cathartic, one of the best is *cascara sagrada* in doses of fifteen drops of the fluid extract, or a couple of the five-grain *cascara sagrada* pills every evening.

Hemorrhoids (Piles)

These are small tumours which form within or just at the mouth of the anus. The tumours are formed by the dila-

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tion of the veins of this part. One cause of hemorrhoids is constipation.

Hemorrhoids and other kinds of sores about the anus may be caused by the coarse paper that is used in the water-closet. Soft paper should always be used for this purpose.

Treatment

The most important part of the treatment for hemorrhoids is to cure the constipation. For effecting this the methods mentioned in the preceding section may be used. One suffering with severe hemorrhoids should be examined by a competent physician, for in such a case it requires the skill of a competent physician to effect a cure.

When the hemorrhoids are not severe, the following methods will be found effective. Have a regular time to evacuate the bowels, preferably just after breakfast. Secure a small syringe like the one shown in the section on constipation. Inject into the bowel one or two syringefuls of clean, cool water. After injecting the water wait a few minutes and then evacuate the bowels. After having evacuated the bowels inject another syringeful of cool water into the bowel and immediately evacuate it from the bowel. This cleanses the lower end of the bowel of all fecal matter and is a very important part of the treatment. Having evacuated the bowels, use a clean cloth wet in water and wash the parts about the anus. After drying apply a little of the ointment made as follows: Mix Lead Acetate, two parts; Tannic Acid, one part; Ointment of Belladonna, fifteen parts. A small amount of this ointment may be applied two or three times a day. It should be applied to the mouth of the anus and also to the bowel inside the anus.



CHAPTER 30

Diarrhœa and Dysentery

Diarrhœa

Diarrhœa is not a disease of itself; it is a symptom that occurs in many diseases. If there is cholera in the neighbourhood, the diarrhœa may be the initial symptom of cholera, and should be treated according to the method outlined in Chapter 32. If the diarrhœa continues for several days, and the bowel discharges are of a reddish colour and contain mucus, the treatment outlined in this chapter for dysentery should be used.

The ordinary attack of diarrhœa is in the majority of cases due to eating or drinking improper articles of food. That which caused the diarrhœa may have been indigestible, poorly-cooked food, or spoiled food, or unripe fruits, or crabs, or dried fish. Flies are responsible for causing an immense amount of diarrhœa. Overeating of any kind of food, bad drinking-water, worms in the intestines, and chilling of the abdomen, also cause diarrhœa.

Treatment

The frequent bowel discharges are clear evidence that the bowels are trying to get rid of some offending material in them, and for this reason every help should be rendered, in the way of drinking large quantities of warm water and by the use of the hot (105 degrees Fahrenheit) enema, following each bowel discharge, and by using small doses of Epsom salts or castor oil. The water should be sipped slowly. If plain water is not agreeable, thin rice-water, containing a teaspoonful of salt to the pint, may be used instead. The water passes down through the intestines and helps to flush out anything in them that is causing the diarrhœa. Apply fomentations to the abdomen for fifteen minutes every three or four hours to relieve the pain and help cure the disease.

After using the enema and water-drinking for a day, then steps may be taken to check the diarrhœa as follows: Reduce

the amount of water drunk and after each bowel discharge give a hot starch enema (see Chapter 26). Give prescription No.7 (see Chapter 50) every four hours.

In all forms of diarrhœa, it is important that the patient keep quiet. It is best to remain in bed. Any walking or moving about will aggravate the diarrhœa, just as moving an injured arm or leg increases the pain.

The diet for twenty-four to forty-eight hours must be restricted to such articles as rice-water and egg-albumin-water (prescription 27, Chapter 50). Not a particle of the ordinary solid foods should be eaten until after the diarrhœa is stopped, and then one should eat very sparingly of solid foods for several days. When the diarrhœa is almost cured, just one mouthful of vegetables or flesh will often cause a recurrence of the trouble.

All the food and drink, together with all the dishes, spoons, etc., used for a diarrhœa patient, should be kept very clean; they should be washed with boiling water. The patient should always wash the hands before eating. A piece of flannel 12 to 15 inches wide should be worn about the abdomen until the diarrhœa has entirely stopped. This prevents chilling of the abdomen.

Dysentery

In dysentery there is looseness of the bowels the same as in diarrhœa, but the bowel movements are accompanied with griping and burning in the lower bowel. The bowel passages are frequent and scanty, and contain mucus and blood. Sometimes the disease comes on suddenly with high fever.

A very common form of dysentery throughout all the countries of Asia is that caused by the amœba. The amœba is a micro-organism that gets into the intestines along with the food and drink. When amœbic dysentery sets in, the bowel movements contain blood and mucus; the abdomen becomes sore; there is a burning pain in the lower end of the intestines when the bowels move. There may be thirty or more bowel movements in a day. The patient feels weak, and there is a marked loss of weight. The disease often becomes chronic; there will be diarrhœa for a while; following this the diarrhœa will stop and the bowels may be constipat-

ed for some days, only to be followed later by diarrhœa more severe than the former attacks.

If the amœbic dysentery has continued for a long time, the food will pass through the body unchanged soon after being eaten.

Abscess of the liver often occurs in those who have amœbic dysentery. In case of abscess of the liver, there will be pain at the lower border of the ribs, on the right side, in front. Sometimes there is pain in the back under the right shoulder-blade.

Treatment

Every case of dysentery is serious, and the services of a competent physician should be secured if possible. The kind of treatment will depend upon the kind of dysentery afflicting the patient. It requires a skilled physician to tell the differences between the various kinds of dysentery.

It is of the utmost importance that the patient be placed at rest in bed. He should use a bed-pan in order to obviate the necessity of getting up every time there is a bowel movement. Rest in bed is a necessary part of the treatment in every case of dysentery. Never take any of the patent medicines advertised in the newspapers. There are very few medicines that may be used in curing this disease. The promiscuous taking of the ordinary diarrhœa medicines will aggravate the disease. Alcohol in any form does harm, and should not be used.

The treatment for the amœbic dysentery is to restrict the diet to thin liquid foods. Cleanse the bowels by giving half an ounce of castor oil, or a few small doses of Epsom salts or Glauber's salts. After the castor oil has acted, give emetin. This medicine is practically a sure cure for amœbic dysentery. In case you secure a physician, he may give the emetin by hypodermic injections. If you cannot secure a physician, then secure the keratin-coated emetin tablets (such as are prepared by Burroughs, Welcome & Co.), take a half-grain tablet every evening for ten days or more. On the days that the medicine is taken, do not eat the evening meal. If the evening meal is eaten, the medicine may cause vomiting.

If emetin cannot be secured, then give 10 to 20 grains of ipecac twice daily for several days. No food may be eaten

for at least three hours before taking the ipecac, and after taking it the patient must lie very quietly, and not eat or drink anything for at least three hours. All this must be done in order to avoid vomiting. During the acute stages of the disease, the pain caused by the griping and burning may be relieved by fomentations to the abdomen or by heating a thin piece of stone and wrapping it in a dry cloth and placing this over the abdomen. A warm starch enema (see Chapter 26) of a pint of thin warm starch, to which 40 or 50 drops of laudanum have been added, will also relieve the pain. An enema of very hot water, to which is added a teaspoonful of salt to each pint of water, is also helpful in cleansing the lower end of the bowel and checking somewhat the straining and the frequent desire to empty the bowels.

In chronic dysentery, the emetin or ipecac should always be tried for several days. The patient must remain in bed. A small dose of castor oil should be given daily, and the diet should be restricted to rice-water and egg-albumin-water. (See Chapter 50.) If the emetin or ipecac does not effect a cure, medicated enemas should be used. First give an enema of two pints of warm water in which is dissolved three teaspoonfuls of bi-carbonate of soda. Wait until this water is discharged and then give an enema of half a pint of warm water in which is dissolved two teaspoonfuls of boracic acid or half a teaspoonful of salt. Repeat this treatment daily.

There are other methods of treatment, that are very efficacious, but they can be given only by a physician.

In all forms of dysentery, proper diet is a matter of the first importance; for when the interior of the bowels is inflamed and diseased as it is in dysentery, ordinary food irritates the bowels and aggravates the dysentery. For one with dysentery to eat the foods he would ordinarily eat, is very much like putting sand into an inflamed eye. The diet should be reduced to the smallest possible amount. If the tongue is coated, small quantities of thin rice-gruel or egg-albumin-water, may be taken. Raw eggs may be eaten, either plain or as an egg-nog. (See Chapter 47.) It is best to take small quantities of food every two hours rather than to eat larger amounts three times a day. The food should not be very hot or very cold. Sour foods must be avoided. In cases where

the tongue is not coated, milk may be eaten. It will be necessary to secure milk that is clean and fresh, and even then it should be boiled just before using. As the disease improves, the amount of food may be gradually increased. Be very careful about eating solid food. Vegetables must not be eaten, and most kinds of fruit are not well borne. Any solid food eaten must be chewed very fine before swallowing. One small piece of food, if swallowed without being chewed, may cause a recurrence of the disease in one who is almost recovered. The mouth should be kept clean by washing several times daily with Prescription No. 9. (See Chapter 50.)

How to Avoid Diarrhœa and Dysentery

Diarrhœa and dysentery can be avoided; in fact, they are much more easily avoided than many other diseases. The disease germs always enter the body through the mouth; therefore, to avoid the disease entirely, it is necessary to use none but clean foods and drinks, and to avoid putting any unclean thing in the mouth.

Those who observe the following rules will avoid diarrhœa and dysentery:—

1. A very large percentage of all cases of diarrhœa and dysentery are contracted through the use of unclean water. The germs are found in abundance in the stools of all who have these diseases. Many latrines are near wells or streams of water. Rains carry the fecal matter into the wells and streams. In some cases, careless persons throw fecal matter into a stream or on the ground near a well. Those who drink well-water, or water from any stream, without first boiling it are in great danger of contracting some form of diarrhœa or dysentery. For this reason, boil all water used for drinking, or for cleansing the mouth or teeth.

2. Do not touch drinking-water or food with the hands unless they have just been washed clean.

3. If food is placed on dishes that have not been washed clean or if it should fall to the ground, it may be smeared with germs that cause diarrhœa and dysentery. Therefore every time dishes or dish-cloths are used, scald them with boiling water. Food that drops on the ground should be thrown away unless it can be scalded or the soiled part cut away.

4. Protect all food from flies. Flies eat the bowel-discharges of those who have diarrhœa or dysentery. The fæcal matter also gets on the feet of flies. These flies crawl over clean food and leave millions of disease-germs on it. See Chapter 48 concerning how to get rid of flies.

5. Most foods should be cooked. Food after being cooked must be kept covered so that flies cannot reach it. All vegetables bought in the market must be cooked unless it be some vegetable similar to the cucumber, which can be first immersed in boiling water and then peeled. All fruit bought in the market must be peeled before eating. If boiling water is first poured over it, and then the fruit is peeled, this will insure the fruit being clean.

Slices of melon and fruits that are bought in the market are responsible for causing a large amount of diarrhœa and dysentery.

6. If one member of the family has diarrhœa or dysentery, be sure and disinfect the bowel-discharges before throwing them out. The method is described in Chapter 47. None of the other members of the family should use any dish, cup, wash-pan, or towel that is used by the sick person.

Keep the fingers out of the mouth. The fingers are used to touch many articles that are not clean and if put in the mouth, diarrhœa germs may in this way gain entrance. Never put pieces of money, or, in fact, any articles except clean food and drink, in the mouth.

8. Just as soon as there is any looseness of the bowels, treatment should be begun by keeping quiet, restricting the diet, and eating only fluid foods. By beginning early, the disease may be checked before it becomes serious.



CHAPTER 31

Typhoid or Enteric Fever

Typhoid fever is a disease caused by the typhoid germ. The fever usually lasts for three weeks or more, but in some cases may continue only for from seven to ten days. The first symptoms noticed as a rule are malaise, lassitude, and headache. There may be general pain all over the body, or a pain limited to the abdominal region. Frequently there is a chill at the outset.

After the onset, the fever usually continues at about 101 degrees Fahrenheit in the morning, and 103 or 104 degrees Fahrenheit in the evening. The pulse is about eighty or ninety per minute. In many cases the fever subsides somewhat after the first day or two, and the patient, though feeling ill, may continue to go about and not be compelled to go to bed for eight or ten days.

After the first few days of the disease, the fever, as a rule, continues at 103 degrees Fahrenheit. The patient complains of headache; the tongue is coated with white fur. There is little or no desire for food and if food is eaten vomiting may occur. The abdomen is usually distended and painful. The bowels may be constipated, or there may be diarrhoea. The patient is drowsy much of the time.

During the second week of the disease, the fever usually continues high. Red spots that look very much like the spot following a flea-bite may appear on the abdomen or chest. The lips and tongue as a rule become covered with dark brown scabs. In one case out of every eight or ten there is bleeding in the intestines, sometimes only sufficient in amount to give the bowels a slight reddish tinge; at other times the bleeding is so profuse as to cause death. The patient is delirious at times. The bowels are, in the majority of cases, constipated.

During the third week the temperature gradually falls, and returns to normal in about twenty-one days after the onset

of the disease. Bleeding of the bowels or perforation due to sloughing of a piece of the bowel, are dangers to be feared during this third week of the disease.

In any case of continued fever, a competent physician should be called; for he is enabled, by examining the patient's blood, to determine for a certainty whether the disease is typhoid or not. And since every typhoid case should be carefully nursed, and the fæces and urine thoroughly disinfected, it is important that the disease be diagnosed as early as possible.

Treatment

Medicines are of little use in treating typhoid fever. Good nursing and proper diet are of much more value than medicines. The patient should be in a well-ventilated room, and should be confined to his bed from the outset.

The most of the food should be liquid. If good fresh milk can be secured, it may form part of the diet. It should be boiled before being given to the patient. Soups with the solid particles strained out, and eggs either jellied or soft boiled, rice gruel, brown flour gruel, custards, milk toast (it must be thoroughly enewed), baked potatoes, boiled, browned rice—all may be used. (See Chapter 47, for methods of preparing these foods) Do not allow the patient to eat a large quantity at one time. If there is no nurse to care for the patient continually, keep a jug or pitcher of clean boiled water near the bed so the sick one can drink often and freely. Patients with typhoid should drink an abundance of water, at least six or eight pints daily.

The mouth should be washed, and the teeth and tongue brushed, frequently. Use prescription No. 9. (See Chapter 50.)

Apply fomentations to the abdomen for fifteen or twenty minutes at a time to relieve the abdominal pain, should there be pain.

If there is diarrhœa, use the hot starch enema. (See Chapter 26.) If the bowels are constipated, an enema of warm water every other day may be used. (See Chapter 20.)

To reduce the fever, sponge the patient with cool water. Keep sponging the skin for fifteen or twenty minutes, or longer. Dry the skin by fanning it, and not by using a towel.

This is a very valuable treatment, for it reduces the fever and revives the patient so that he feels much better in every way. There is no danger of his taking cold because of the sponging. The sponging with cool water may be repeated several times a day if the fever is high. (See Note, page 101.)

A cloth wrung out of the coldest water obtainable should be applied to the head to relieve the patient's headache. The cloth must be re-wet in the water every few minutes.

If any blood is noticed in the stools, no food should be given for ten or twelve hours. If ice can be secured, wrap some broken pieces of ice in a cloth and lay them over the abdomen. The cold will check the bleeding in the bowels.

When the temperature has gone down, and the patient begins to have an appetite, he must not eat coarse meats or vegetables.

In caring for a typhoid fever patient great care should be taken that the disease shall not spread to others. The feces, urine, and sputum all contain the typhoid germs, and for this reason all three should be disinfected. If bi-chloride of mercury can be secured, use fifteen grains in a quart of urine or feces, and allow to stand for an hour or more before emptying. (See Chapter 47 for description of the methods of disinfecting the urine and feces.) The sputum should be expectorated into pieces of paper and burned.

The patient must have his own dishes, spoons, etc., and these must not be allowed to get mixed with the eating utensils used by other members of the family. They should be kept in the sick room and should be boiled each time after using. Remnants of food left by the sick person should never be eaten by others. Those who nurse the sick should keep out of the kitchen where food is being prepared for others.

Towels and handkerchiefs used by the sick should be boiled.

The nurse must protect herself. A solution of bi-chloride of mercury of the strength of 15 gr. to a quart of water should be kept in the room and each time after feeding the patient or washing him, the nurse should wash her hands in this bi-chloride of mercury solution.

When the patient recovers, the mat on the bed should be burned and the clothing and bed-clothing should all be

boiled thoroughly. The room should be well whitewashed, and the floor scrubbed with the bi-chloride of mercury, 15 gr. to a quart of water. (See also Chapter 47 for other advice concerning the cleaning of the room, etc.)

During the disease, and for a couple of weeks after recovery, it is well to give ten grains of urotropin daily to destroy the germs that are in the urine.

Prevention of Typhoid Fever

Typhoid fever is a disease that can be avoided by all who will be careful about what enters the mouth. The germs enter only through the mouth, and are usually in the water or the food. Most faecal matter is thrown where some of it ultimately gets into wells, streams, or ponds. For this reason use only boiled water for drinking, and for washing the mouth, or washing foods that are to be eaten uncooked. Typhoid fever is often carried in milk, and for this reason all milk should be boiled or pasteurized before being used. Typhoid fever is often contracted through eating oysters, prawns, or shell-fish. These are not fit for human consumption, but in case they are eaten, they should be thoroughly boiled first.

The land where vegetables are grown is sometimes fertilized with human faecal matter. The disease germs in this faeces become attached to the leaves and roots of the vegetable, and for this reason vegetables should be cooked before being eaten. Fruits are gathered by those whose hands are filthy. The fruit after being gathered is often stored in very filthy places. For this reason fruit should first be scalded with boiling water and then peeled before being eaten.

Flies spread typhoid. They act such an important part in the spread of this disease that the name "typhoid fly" is often applied to the common fly. Keep flies out of the kitchen by the use of netting over the windows and doors. Keep cooked food in a cupboard where flies cannot enter. When the food is set on the table to eat, spread a net over it to keep the flies off. (See illustration, page 29.)

Never use any dish, cup, spoon, towel, or handkerchief that has been used by a typhoid fever patient, without first boiling it for several minutes. Never eat any food that has been in a room where some one is sick with typhoid fever. Typhoid germs and the germs that cause diarrhoea, dysentery,

and cholera are found in ponds. One should never bathe in a pond lest some of the water enters the mouth, and in this way a serious disease be contracted.

During recent years a new method for preventing typhoid fever has been discovered. It is very similar to the method for preventing small-pox by vaccination. The vaccine against typhoid is injected into the body with a hypodermic syringe, and one who has received injections of



One Way of Spreading Typhoid Fever, Cholera, etc.

the typhoid vaccine is immune for two or three years. This method is one that should by all means be used by those who live in places where there is much typhoid fever, and by those who travel much and are thus unable to exercise the necessary care about their food and drink.

An important factor in avoiding typhoid is the natural resistance of the body against disease. The use of alcohol, tobacco, betel-nut or opium—in fact, dissipation in any form—weakens the body and paves the way for the typhoid germ to easily gain a foothold. If one has indigestion or diarrhœa the alimentary canal is in a condition that renders him liable to contract typhoid much easier than an individual whose alimentary canal is in good condition.

CHAPTER 32

Cholera

Great epidemics of cholera have swept over almost every country on the globe; and, as a rule, five out of every ten who contract the disease, die. The disease is always present in most of the large Asiatic cities; and all should understand how the disease is spread, in order that they may be enabled the better to avoid it. And since cholera is not necessarily fatal, all should know the most effective treatment.

The cause of the disease is the cholera germ. This germ gets into the body through the mouth along with the food or drink; or it may get into the mouth through the fingers or something else being put in the mouth. After the germs enter the body, they usually cause the disease in one or two days' time, and, at the outside, in less than five days. The disease may come on in a few hours' time after eating or drinking something that contains a large number of cholera germs.

Symptoms

The symptoms in a typical case of cholera are as follows:—

In about 12 to 18 hours after having eaten or drunk something that contained cholera germs there will be pain in the abdomen. In a very short time diarrhoea begins and rapidly increases in severity until the thin rice-water stools run from the bowels almost continuously.

In some cases the disease begins with chilliness, thirst, coated tongue, slight pain in the abdomen, and during the day three or four copious, watery stools. The patient feels very weak. The following day the bowel discharges rapidly increase in number. The discharges consist of a whitish, rice-water-like fluid. They are voided forcibly. There is also forcible vomiting. The vomited material consists at first of the food that may have been eaten, but later the matter vomited up looks very much like the bowel discharges. The

thirst becomes intense, and there is severe pain in the legs, arms, back, and other parts of the body.

As the disease increases in severity, the appearance of the patient becomes alarming. The eyes are shrunken and surrounded by black rings; the nose is pinched and pointed, the cheeks hollow; the lips blue; the surface of the body cold and moist with a sticky perspiration; the skin of the hands and fingers has the appearance of the skin of the hands of a laundry man who has had his hands in hot soapy water all day; the voice is weak; the breath is cold; there is very little urine passed.

Cholera does not always come on in the ways described above. Sometimes the patient will have an ordinary diarrhœa for some time and this later changes to cholera.

There are cases of cholera in which the patient does not go to bed. He has diarrhœa, weakness, and passes very little urine. These cases of cholera serve to spread the disease widely, since the sick persons can go about and mingle with well people.

In epidemics of cholera, the disease may be so severe that people attacked complain of terrible cramps in the legs or arms, and die in a very few hours without any diarrhœa.

After the severe symptoms of the disease have abated, there is still great danger of the patient's dying from failure of the kidneys to eliminate urine.

Diagnosis

During an epidemic of cholera, any diarrhœa may be the beginning of cholera, and should be treated as though it were cholera. The profuse rice-water-like bowel discharges, the collapse, the cold clammy skin, the shrunken features, the shrivelled fingers and toes, the cramps, the scanty urine, are all distinctive of cholera.

Cholera in Children

Cholera in children is often overlooked, because the symptoms are often unlike the symptoms of cholera in the adult. In many cases a child with cholera will have the symptoms of diarrhœa or dysentery (See Chapter 26). Many children with cholera have marked convulsions along with a slight diarrhœa. Whenever cholera is present in a community, if a child sickens and has diarrhœa, cramps in the stomach, or

convulsions, he should be treated the same as you would treat a case of cholera.

Treatment

The treatment should be begun as early as possible. As soon as the disease is diagnosed, report to the nearest Health Officer, and secure, if possible, a competent physician to care for the patient.

The patient should be placed in bed as soon as there are cramps or diarrhœa. Provide a bed-pan and urinal, so the patient will not have to get out of bed. Give large quantities of cold boiled water, to which has been added the juice of limes or lemons. Give no food other than rice-water and egg-albumin-water (see Chapter 47). If vomiting occurs, withhold food for a time, and give water freely. Fomentations to the abdomen (see Chapter 20) are helpful.

Recently a very effective treatment for cholera has been discovered. It consists of injecting salt solution into the veins. One hundred and twenty grains of pure salt are added to one pint of pure boiled water. This is sterilized by boiling, and cooled, then injected into a vein in the leg or arm. This is the best treatment known for cholera. The injections as a rule have to be repeated several times. This is a treatment that only a physician or a skilled nurse can give.

If neither a physician nor a skilled nurse can be secured, then give the following treatment:—

Keep the patient warm. It may be necessary to place, next to his body, bottles filled with hot water wrapped in cloths. Every three hours give a hot (105 degrees Fahrenheit) saline enema of two quarts of water. Use eight spoonfuls of salt in the water. Three times a day give a hot (105 degrees Fahrenheit) tannic acid enema. This is made by adding seventy-five grains of tannic acid to a pint of water. This helps to check the diarrhœa.

A treatment that has recently been used much, and is very efficacious, is to give in addition to the saline enemas, potassium permanganate. The patient should be urged to drink, in the place of water, potassium permanganate solution, made by adding five or six grains of potassium permanganate to each pint of water. Two or three ounces of this solution should be drunk at one time. In addition to this, every half

hour give a pill containing two grains of potassium permanganate. The potassium permanganate can be mixed with a little kaolin and vaseline so that it can be moulded into a pill. After being moulded into a pill, it must be coated with keratin. One of these pills should be given every half hour for the first day; after that, give one every four hours.

As soon as the diarrhoea is checked somewhat, the patient may be given small quantities of rice-gruel.

Although the symptoms may be relieved and the patient feel much better, yet the saline enema should be continued. (Do not continue the tannic acid enema after the diarrhoea stops.) Urge the patient to drink large quantities of water, to which the juice of limes is added.

The patient is not out of danger until he begins to pass urine. For this reason, continue the hot saline enemas until the kidneys begin to do their work of eliminating urine. Apply fomentations and massage over the lower part of the back.

Never use any of the ordinary patent diarrhoea or dysentery medicines. Do not use any whisky or any other kind of intoxicating liquor.

Instructions to the Nurse Caring for a Case of Cholera

The first thing to be done in a case of cholera is to take the patient to an Isolation Hospital, if there is one available. In case there is none, the patient should be placed in a room which contains only a bed, a table, and a chair. The windows should be kept open; and, if possible, the windows and doors should be covered with mosquito netting to keep out flies.

One person with cholera may infect a whole village or city if the bowel discharges are not carefully disinfected. The bowel discharges should be collected in a vessel, and then should be mixed with an equal amount of 1 to 1,000 bi-chloride of mercury solution (made by adding seven and one-half grains of bichloride of mercury to a pint of water). After adding the disinfectant, allow it to stand for an hour before throwing out. Never throw the faeces into a pond, or stream, or near a well.

In case no bi-chloride of mercury can be secured, a hole may be dug at a distance of a hundred feet or more from

any well or stream, and the fæces thrown into this and covered with a layer of lime or ashes. This method can be used only during the dry season. During the wet season, if no disinfectant can be secured, the fæces can be put in a tin vessel and boiled before they are thrown out.

The fæces of a cholera patient are so poisonous (because of the cholera germs) that a droplet no larger than a mustard-seed, if it should get on some food or in some drinking-water would be sufficient to cause the one who used that food or water to contract cholera.

Any utensil used by a cholera patient for eating or drinking must not be taken out of the sick-room without first being boiled. Everything the cholera patient touches with his lips or hands is poisonous (because there are cholera germs on the lips and hands), and must not be handled by others. The nurse who is taking care of a cholera patient must wash her hands often with 1 to 1,000 bi-chloride of mercury solution. She should never put her fingers into her mouth. She should not eat any food in the sick room. And before eating food, the hands should be washed first with soap and water, and then immersed in the 1 to 1,000 bi-chloride of mercury solution for several minutes.

After recovery, the room in which the cholera patient was kept, together with all the furniture in the room, should be disinfected according to the methods outlined in Chapter 47.

How Individuals Can Avoid Contracting Cholera

It is known that the gastric juice of a healthy individual will destroy cholera germs if there is not too large a quantity of them. Therefore, one of the most important points in avoiding the disease is to keep the stomach and intestines healthy, and to keep the whole body in good health. In an epidemic of cholera, it is always the ones that use intoxicating liquors and dissipate, that get the disease and die first.

There is more danger of getting infected with cholera if one happens to get cholera germs into the stomach when it is empty or when the body is fagged.

The cholera germs always enter through the mouth; therefore, to absolutely avoid contracting the disease, all that is necessary is to make sure that the food and drink have

been boiled, and that flies have not been allowed to get at it after it has been boiled.

The fingers must be kept out of the mouth.

In many cases, the disease is contracted by eating raw fruits or vegetables.

All the precautions mentioned in Chapters 30 and 31 should be observed, in order to make sure of avoiding cholera. These may be recapitulated briefly for the guidance of individuals in case of an epidemic of cholera.

1. Be absolutely certain that all water used for drinking purposes or for cleaning the teeth and mouth, has been boiled.

2. Eat no foods except those that are cooked and are served steaming hot.

3. Melons, cucumbers, and raw fruits must not be eaten.

4. Anything bought on the streets is dangerous, and must not be eaten unless it first be boiled.

5. Do not touch any article, such as towel, handkerchief, bed-clothing, bowls, or spoons, that has been used by one sick with cholera, unless the articles have been boiled after being taken away from the sick-room.

6. Flies, cockroaches, and ants carry the cholera germs. Food should be kept covered, so that these pests cannot get to it. Special care should be taken that the food, after being cooked, should be kept covered so that no flies can reach it.

7. Wash the hands thoroughly with soap and water before handling food or drink.

8. Avoid, if possible, close contact with those who live in families or communities where cholera is epidemic.

9. When travelling, carry your own drinking cup, wash-pan, towels, etc., for to use the cups, pans, etc., in the hotels or on the train, is dangerous.



CHAPTER 33

Typhus Fever; Dengue Fever; Plague

Typhus Fever

Typhus fever is a disease that has received various names, such as prison fever, ship fever, famine fever. These names give one an idea of the nature of the disease; that is, that it is a disease found among those who are poorly nourished and who live in crowded unsanitary places. The disease often becomes a scourge in famine districts.

It is definitely known that typhus fever is spread by the body louse and the head-lice. It is possible that it is also spread by other vermin, such as the bed-bug. It is possible also that it may be spread by the faeces and urine of a typhus fever patient contaminating food and drinking-water.

Symptoms

The disease comes on very suddenly, within not exceeding twelve days of the time the individual was bitten by a louse which had previously bitten some one sick with typhus. There is first a chill; following this the temperature rises very rapidly, and there may be delirium. The eyes become red and watery. The fever, by the third or fourth day, may reach 104 degrees Fahrenheit, or even as high as 105 or 106 degrees F. Then for the next four or five days the fever will be a little lower than this each morning; but the evening temperature will continue to reach 103 or 104 degrees F. As a general rule, about the fourteenth day of the disease the fever drops suddenly. The abatement of the fever is accompanied by profuse sweating.

After the second or third day of the disease, an eruption appears on the body. It is very noticeable about the forearms and shoulders. The spots at first may resemble the eruption of measles. A little later there will be noticed a dark bluish point in the centre of each of the spots which first appeared.

Treatment

Medicines cannot cure the disease or cut short its course. The treatment that is outlined in Chapter 31 for typhoid fever, will be found to be the very best treatment that can be used in typhus fever. The patient should be put to bed. It is well for the bed to be outside the house, under a verandah or some other protection from the sun. Give the patient large quantities of boiled water to drink; give also fruit juices. He may eat such foods as rice-gruel, eggs, soups, custards, toasted bread, and boiled milk.

How to Avoid the Disease

This disease is seldom found among those who live in clean houses and who wear clean clothing; for such people do not have lice in their clothing or bedding.

In case there is typhus fever in one's neighbourhood, great care must be taken to avoid being bitten by lice. If obliged to go about among those who are sick, one should avoid coming in contact with their clothing, avoid sitting on their beds, and by all means avoid wearing any garment, hat, cap, shoes, or stockings that have been worn by one who has the disease.

In caring for the sick, their beds and bed-clothing should be kept clean; and it is well to clip their hair short. After a patient recovers, disinfect the bedding and clothing by boiling.

Dengue Fever

Dengue fever is a disease that is spread by mosquitoes. After having been bitten by mosquitoes which carry the dengue poison, a period of three to six days elapses before the disease develops. The attack is usually sudden. There is first a feeling of chilliness, followed by severe pain in some part of the body, such as the limbs, back, or head. There is always a splitting headache, most severe in the frontal region and back of the eyes. The eyes become red and watery. The temperature rises rapidly from 103 to 105 degrees Fahrenheit. There is no appetite. Nausea and vomiting are not uncommon. In children, convulsions and delirium are common. On the third day the temperature usually falls accompanied

by profuse perspiration, the passage of much urine, and sometimes violent diarrhœa. After this the patient feels well for a day or two, then the pains come on again, and the temperature comes up. A rash may appear on the arms, trunk, and legs. This second rise of temperature usually lasts but a short time, and then goes down to normal.

Treatment

The patient should be kept in bed and protected day and night by a mosquito-net to prevent mosquitoes from biting him and transmitting the disease to others. Restrict the diet to rice-gruel, soft-boiled eggs, and fruit. At the outset, give a dose of castor-oil or Epsom salts. Apply cold cloths or ice to the head to relieve the headache. Give the patient cool boiled water and fruit-juices or lemonade to drink. Apply fomentations to the painful parts.

To prevent the disease, it is only necessary to avoid being bitten by mosquitoes. Use a net on the bed, and always carry a net when travelling.

Plague

Plague is also known as Black Death or Bubonic Plague. It is a disease caused by the plague germ. This plague germ produces an epizootic in rats, and the disease-producing germ is then spread from rats to man through the agency of fleas. Plague is one of the most deadly diseases that afflicts man. When it becomes epidemic in a locality, it sometimes kills the inhabitants by the tens of thousands.

Symptoms

After the plague germs enter the body, the disease develops very quickly, the usual time being three days. The onset is usually sudden, with a chill, followed by a rapid rise of temperature to 103 or 104 degrees Fahrenheit. There is also headache, pains in the back and limbs, vomiting, and diarrhœa. In a few hours' time the eyes become red, and the facial expression is one of fear and anxiety. The temperature may quickly go up to 107 degrees Fahrenheit, and in such a case the patient soon dies.

If the disease is of a less severe type, the fever will generally be about 104 degrees Fahrenheit. Buboes of varying

size develop in the groin, axilla (arm pit), or neck. They are very painful. As the disease continues, the patient becomes weaker and weaker, and usually becomes delirious.

Death may occur within a few hours from the outset of the disease. In one form of the disease, known as Black Death, due to blackish spots appearing in the skin, death is almost certain to occur within two days. In another form of the disease, called Pneumonic Plague, in which the disease process is most prominent in the lungs, death occurs within two or three days.

Treatment

The treatment that is of most value for plague is to inject a serum that helps to overcome the poison produced by the plague germs. Every case of plague should be immediately reported to the Health Officer. The care of a patient afflicted with plague must be superintended by a competent physician.

The patient must be kept in bed, with the sick-room windows open. Give him liberal amounts of cool water to drink. Use the cool sponging mentioned in Chapter 31, for the fever. (See Note, page 101.) Keep cloths, wet in cold water, on the head. Re-wet the cloths frequently. The diet should consist of soups, rice-gruel, and soft-boiled or jellied eggs (Chapter 47).

Prevention

The prevention of plague requires, as does cholera, preventive methods controlled by the officials for the good of the public, and also individual preventive methods.

Every effort should be made by the officials, and by all others in a district where plague is epidemic, to destroy all the rats. It has long been known that the rat contracts plague before the human does. When the rat dies, the fleas that have been on its body and have bitten it, leave the dead rat and get on men's bodies. The fleas, by biting the plague rats, get the germs into their bodies; and when they bite a man, the germs get into the man's body and give him the plague.

There is no plague where there are no rats. The destruction of the rats should be entered into systematically by companies of men skilled in rat-killing. Traps, poison, cats, and rat-terriers are all effective ways of destroying rats. But the most effective method of all is to keep all foods and grain of every kind in buildings where rats cannot get at them.

Rats cannot live without food. In addition to this, walls and floors must be torn out of those houses that are infested with rats and replaced by walls and floors that are rat-proof. The officials, by examining rats caught in different parts of a city, can tell in what part of a city there is plague, and in what parts there is none.

There is a plague serum that is used as a vaccine. It has been found that those vaccinated with this vaccine are less liable to contract plague than those not vaccinated, and in case those vaccinated are attacked with plague, the death-rate is much lower than in the case of the unvaccinated. In case plague breaks out in a community, all the inhabitants of the community, both old and young, should be inoculated with this serum as a preventive measure.

When plague enters a community rats begin to die before the disease attacks men. At any time that a dead rat is found in or about the house it should cause the greatest concern. Report the matter to the Health Officer. Keep the dead rat until the Health Officer arrives. Do not pick up the rat with the hands. Before removing the rat scatter carbolic acid over it or pour boiling water on it.

To avoid being bitten by the fleas that carry plague, one must avoid entering the locality where there are plague patients. It is possible to keep a house free from fleas by scattering either kerosene, crude coal oil, Jey's fluid, Phenyle, or Cyllin on the floors of the house. Special pains should be taken to scatter the liquid at the base of the walls and in the corners of the room. Powdered alum scattered about on the floor will also keep fleas out of a room.

If it is necessary to go into a house where there are people sick with the plague, it would be well to first be vaccinated with the plague serum; and in addition to that, provide an oil-cloth suit (provided with feet) that will protect the body so that fleas cannot get through to bite the skin.

If the disease is pneumonic plague, it is necessary for the nurse, and all who must be in the building with the sick, to wear over the face a mask made of a thin layer of cotton held between two pieces of gauze.

Pneumonic plague is one of the most contagious diseases known. The germ enters the nose with the air that is breathed, and this is why a mask must be worn over the face.

CHAPTER 34

Beriberi

Until recently this has been one of the commonest diseases in many parts of Asia. The symptoms vary greatly in different cases. Some who have this disease become partially paralysed in the legs and arms; there is numbness of the skin, especially of the skin over the shins, the backs of the feet and finger tips. The patient's legs become thin, and if the calf of the leg is squeezed the patient cries out with pain. On account of the legs being partly paralyzed, the patient walks with a staggering gait, and gets out of breath very quickly. The heart beats very, very rapidly at times. The voice may be very weak, or sometimes almost entirely lost.

Others afflicted with beriberi have arms, legs and body greatly swollen. They have great difficulty in breathing. The heart beats very fast. If the muscles in the calf of the leg are squeezed, they will usually cry out with pain. There is no fever in any of these cases. The tongue is clean, and the bowels may be either loose or constipated.

Beriberi is really an inflammation of many of the nerves throughout the body, and this inflammation causes a partial or complete loss of the use of the muscles controlled by these nerves. The nerves of feeling show the effects of the inflammation by pain in many parts of the body. Some of the nerves which govern the blood-vessels show the effects of the inflammation by permitting the vessels to leak. This produces the dropsical swelling in the legs, arms, and trunk.

Cause of Beriberi

Beriberi occurs almost exclusively among those who use white rice as one of the main articles of diet. Chemists have examined the rice and have found that the outside of a grain of rice is not the same as the inside. When the rice is polished, the outer coating is removed. This outer coating is not the hull; it is the reddish-coloured coating that is left on

the grain of rice after the hull is removed. In this reddish-coloured coating, there are certain substances that are essential in order that rice may supply the proper nourishment for the body. If the rice is polished, this outer reddish-coloured layer is rubbed off. This same substance that is found in the outer reddish coat of rice is also found in other foods, especially in beans, so that persons who eat beans and vegetables, in addition to the polished rice and fish do not contract beriberi.

Infants also contract beriberi, and in some places, especially in the city of Manila, it causes a large percentage of the deaths that occur among children under one year of age. It is true that the infants do not eat white rice, but their mothers do. Since the mother subsists largely upon polished rice, her milk is deficient in that substance contained in the outer coating of the rice which is necessary in order to keep the human body in health. For this reason the child that subsists on this milk often develops infantile beriberi.

The symptoms of beriberi in the infants are as follows:—The babies afflicted with beriberi are always breast-fed, and the disease usually appears when they are a couple of months old. The baby does not look sick, because its face is plump, and it nurses greedily, and may smile and play as a normal infant should. But it will be noticed that there is blueness about the mouth and nose, restlessness, sleeplessness, and loss of voice. In some cases the first symptom that a child shows is sudden crying, which increases in severity until he goes into convulsions, and dies in a few hours. Infants with beriberi have attacks of dyspnea (difficult breathing). The child moans and sighs, the face becomes blue, and the breathing and pulse are extremely rapid. There is no fever. If inquiry is made, it will be found that the infant's mother is subsisting almost entirely upon white rice.

How May Beriberi Be Prevented ?

From what has been said it is apparent how the disease may be prevented. It is simply to eat the unpolished instead of the polished rice. This terrible disease can be entirely prevented without increasing the cost of living. The unpolished rice is just as appetizing as the polished rice; and had it not become a custom to polish off the outer reddish coating

from the rice grain, beriberi would not have become the scourge that it has in past years.

It is important that all who understand the cause of beriberi should help in educating others as to the dangers of using the polished rice. Since unpolished rice is superior in every way to the white rice, all should use the unpolished rice in order to set a good example. It is important that all should understand the importance of making dhal, or other legumes, an important article of diet, and not depend so much upon rice and fish.

Treatment

The method outlined in the preceding section of this chapter for the prevention of beriberi will, if used before the disease becomes too serious, effect a cure. In severe cases of beriberi it will be necessary to use a medicine that is extracted from the powder-like material that is rubbed off the rice when it is being polished.



NOTE: TREATMENT FOR BERIBERI—Additional suggestions for the Treatment of Beriberi are as follows: It is important to recognize the early symptoms of beriberi, for early treatment produces results, and a cure usually follows. The treatment consists largely in giving relief to various symptoms by rest, massage to the extremities, hot foot baths, alternate hot and cold over the stomach, *et cetera*. Keep the bowels clean by the use of castor oil or some saline laxative. Endeavour to supply all the elements necessary for human nutrition. The diet should include yeast, about a teaspoonful to a tablespoonful of which is added to boiling milk, and this is stirred up with cream to make it palatable, and taken at the close of the meal. The food most recommended for beriberi patients is as follows: soft-cooked eggs, fresh milk, beans, peas, lentils, brown bread, lemon juice, spinach, asparagus, walnuts, and the commercial vitamins. A careful diet should be maintained over a period of several days or weeks after the symptoms have cleared.—ED.



CHAPTER 35

Intestinal Parasites and Trichinæ

There are many kinds of parasites that are capable of living in the human body. Some of them do much harm; others do very little harm. In this chapter, only the commonest parasites will be considered.

Round Worms

Round worms have a round body, pointed at each end. They are from four to six inches long. Although they usually remain in the small intestine, yet they may enter the stomach; and sometimes they are vomited up, or they may crawl up into the throat. They may even get into the trachea and strangle the child. If a child has only a few worms in the intestine, these may not cause any symptoms. The usual symptoms showing that a child has worms, are loss of appetite and occasional nausea. At times the child may complain of pain in the abdomen. Picking at the nose and gritting the teeth are also signs that may indicate that a child has worms. A physician, by examining a portion of the child's feces with a microscope, can determine definitely whether or not there are round worms in the intestine.

Treatment

The best method of treatment for a small child, is to give a dose of castor-oil about noon; in the evening of the same day give a half grain of santonin. The santonin may be mixed with a little sugar to induce the child to take it readily. On the morning of the next day, give another half grain of santonin, and at noon give an additional half grain. About two hours after giving the last dose of santonin, give another dose of castor-oil. During the two days that the medicine is being taken, do not allow the child to eat any vegetables, but keep him on a diet of rice gruel and eggs. Unless the diet is restricted, it will be impossible for the santonin to kill all the worms in the intestines.



Intestinal Parasites

Since it is almost unavoidable but that a child will frequently become infected with intestinal worms, it is therefore recommended that every child be given a few doses of Santonin yearly. For although there is no pain or nausea, yet if there are only two or three worms in the intestine, they interfere with the digestion and absorption of the food, and

thus interfere with the growth and health of the child.

Santonin is poisonous, and large doses should not be given to a child. While taking Santonin, the child's urine will be yellow in colour, and he may have "yellow vision" but neither the yellow urine nor yellow vision is harmful for they quickly disappear.

How to Avoid Round Worms

These worms do not, as some people think, grow naturally in the intestines of children. The eggs of the worms enter the body with the food and drink. Intestinal worms lay large numbers of eggs, which are discharged with the bowel discharges. The eggs of the worms are eventually scattered with the fæces on the ground, in the ponds and streams, and on the garden vegetables.

To avoid getting worms, it is necessary that only boiled water be used for drinking purposes. All vegetables bought in the market should be cooked before being eaten. Fruit should be scalded and peeled before it is consumed. Do not allow the children to put the fingers into the mouth; for there may be worm-eggs and various disease-producing germs in the dirt on their soiled hands. Almost any one of the

numerous articles that a child is prone to put into his mouth, may have worm-eggs on it.

Certain intestinal worms are found in the intestines of dogs and cats. When the dog or cat licks a child's hands, the worm-eggs get onto the hands. If the fingers are then put into the mouth, or food is taken into the hands, the worm-eggs enter the child's mouth. Dogs and cats should not be allowed in the house, and should by no means be allowed to lick a child's face or hands.

Hookworm Disease

In many localities nine out of every ten persons are infected with hookworms. It is one of the commonest and most easily prevented diseases known to men. In the past, the inhabitants of certain localities were thought to be lazy and worthless, but later it was found that they were weak and unable to work because of infection with hookworms. As soon as proper measures were applied for curing the disease and preventing the further spread, those who were formerly regarded as lazy and lacking in ambition, became industrious, energetic people.

The hookworm is a small, round, white worm, from one-third of an inch to half an inch in length, and about the size of common sewing thread. If common white thread were cut into short pieces about half an inch long, each piece would look very much like a hookworm. These little worms get into the bodies of both children and adults. Sometimes they are few in number, only ten or twenty; but there may be as many as several thousand in the intestines at one time. They attach themselves to the lining of the bowels and suck the blood. They not only suck the blood, but also make wounds from which the blood constantly oozes. The constant loss of blood, together with the poison manufactured by the hookworms, make the individuals weak and pale. The vitality is lowered to such a degree that other diseases, especially tuberculosis, are easily contracted. Children infected with hookworm become pale and puny. Both their physical and their intellectual growth are stunted. Physical growth is stunted to such an extent that a youth of 18 or 20 may be only as large as a 10- or 12-year-old child. If a child is in-

infected with a large number of hookworms, he will be very slow and backward in his studies.

Definite Symptoms of Hookworm Disease

Pallor of the skin, laziness, occasional pain in the region of the stomach, together with mental laziness, and the habit of eating dirt or lime, are some of the commonest symptoms that enable one to tell whether or not a child or an adult has hookworms.

The physician, by examining with a microscope a small piece of the bowel discharge, can tell for a certainty whether or not an individual has hookworms.

"Ground Itch," which is an itching of the soles of the feet and between the toes, is a symptom that is manifested at the time that hookworms are passing into the body through the skin of the feet.

How Hookworm Disease is Spread; and How it is Prevented

The hookworms that are in the intestines lay an immense number of eggs; these pass out with the bowel discharges and are scattered wherever the bowel discharges are scattered. The eggs develop, and in about ten days' time there is developed a small worm. These little worms are in the soil of the yard, the garden and the fields. They may also be on the vegetables and in the water. They may be taken into the body by eating raw vegetables or by drinking unboiled water. The majority of people who are infected with hookworms become infected through going barefoot. The little hookworms that are in the soil get on the feet, also possibly on the hands, and the bare skin of the buttocks, and bore through the skin. After getting through the skin, they pass along until finally they reach the intestine, where they bite the inner lining of the intestine, and suck out blood.

The essential thing to be done, in preventing the disease, is to avoid polluting the soil with human bowel discharges. This requires the building and use of proper latrines. If all those who are infected with hookworms would only be careful not to defecate on the ground, but always to use latrines, the disease could soon be entirely stamped out. But as long as people defecate on the ground or in latrines where the fecal

matter can be spread by rain, hogs, and chickens, or carried by flies to the houses, hookworm disease will continue to be a scourge.

The latrine should be provided with buckets that can be kept covered. These buckets should be emptied daily. The contents should not be spread on the surface of gardens, but should be buried under the soil. If it is not possible to build a latrine and have it screened so that flies cannot enter, the next best thing is, first, to dig a hole in the ground. Secure a substantial box (there should be no cracks in it large enough for flies to pass through), cut a hole in the bottom of it, place this box upside down over the hole in the ground, and bank up dirt around the lower edge of the box. A flat board larger than the hole in the box should be provided, so that the hole may be covered tight when the box is not being used. After a time the box should be moved, and the pit filled with dirt. This kind of an arrangement will prevent flies from getting at the bowel discharges, and will also prevent the bowel discharges from being scattered upon the ground.

The hookworms can live in the soil for six months or longer. Thus it is dangerous to go barefoot in a garden or field where any faecal matter has been scattered within a year.

It is very easy for any individual to avoid getting hookworms by never going about barefoot, by not digging in the soil of the garden or field with the bare hands, and by never drinking unboiled water, or eating raw vegetables that have not been thoroughly scalded with boiling water.

It is possible that children who go about with the whole body naked or with only the buttocks exposed, may get hookworms by sitting upon the ground.

Treatment

Hookworm disease is usually treated with Epsom salts, and with thymol given in capsules. The object of the Epsom salts is to clean out the intestines, in order that the thymol can reach the worms. The patient should take very little supper on the evening before the thymol is given. In the evening take a dose of Epsom salts; the next morning as soon as the bowels move, take half a dose of thymol, and two hours later take the other half dose of thymol. Two hours after the second dose of thymol has been taken, take

another dose of Epsom salts. This dose of Epsom salts will expel the hookworms which have been forced to loosen their hold on the lining of the intestine by the thymol. The patient should lie on the right side for at least half an hour after taking each dose of thymol. Nothing should be eaten on the day the thymol is given, until after the last dose of Epsom salts has acted well. Only a little water or tea may be taken, but no food. If any wine or alcohol in any form is taken, or if any oil or meat is eaten, the thymol will cause poisoning; for this reason avoid these things.

The dose of thymol should always be finely powdered, and divided into two parts, and taken in capsules not less than two hours apart. The dose for different ages is as follows:—

| | | | | | |
|-------------|-------|-----------|-----------------------|----|--------|
| For a child | 1- 5 | years | the dose of thymol is | 7½ | grains |
| " " | " | 5-10 | " " | " | 15 " |
| " " | " | 10-15 | " " | " | 30 " |
| " an adult | 15-20 | " " | " " | " | 45 " |
| " " | " | 20 and up | " " | " | 60 " |

The worms, when passed in the fæces, can be found by washing and straining the fæces through a layer of thin cloth.

Another treatment for hookworms is to give one drop of chenopodium for each year of the patient's age up until the age of fifteen. The treatment for an adult would be to divide the fifteen drops into three parts of five drops each, and give five drops in a spoonful of sugar every two hours. A dose of Epsom salts should be given the evening of the previous day; and two hours after the last dose of oil of chenopodium, give another dose of Epsom salts.*

Threadworms

Threadworms are small white worms about one-third of an inch long. They are found, as a rule, only in the lower end of the bowel, where they cause much itching and irritation just within the anus and about the anus. These worms are passed with the fæces. They also crawl out of the bowel into the clothing. In female children they may crawl into the vagina and cause itching and a watery discharge. These worms are most commonly found in weak, dirty children.

*Note—The best and safest remedy for hookworm is Carbon Tetrachloride; 45 drops for an adult, given in a capsule on an empty stomach. One dose only. A.E.C.

Treatment

In order to get rid of threadworms, attention should be given to the child's diet. Only clean, nourishing food should be eaten. Do not allow eating between meals.

Give a small dose of castor oil, and following this, inject slowly into the bowel half a pint of warm water in which are dissolved twenty grains of quinine. In place of the quinine, three teaspoonfuls of salt may be used. Encourage the child to retain the fluid as long as possible. Give an injection of the quinine solution or salt solution every other night for a week. If other methods fail, an infusion of quassia chips can be tried. Take a small cupful of quassia chips and soak for twelve hours in a little over half a pint of water. Strain out the chips, and inject this water into the bowel.

To relieve the itching, apply about the anus a little ointment made by mixing five drops of carbolic acid in a couple of teaspoonfuls of vaseline.

If the child scratches or rubs about the anal region, the eggs of the threadworms will get on the fingers and under the finger nails. It is therefore necessary frequently to wash the hands of a child who has threadworms. The finger nails should be kept trimmed short. The child's buttocks should be washed daily. These measures must be taken to keep the child from constantly re-infecting himself with the threadworms.

Tapeworm

Tapeworms are long, thin worms that reach a length of ten to twenty feet. They are acquired by associating too closely with cats and dogs or from the eating of measy beef and pork. Measy beef and pork is meat that has white spots in it, the white spots being the young tapeworms. If one eats such meat without first thoroughly boiling or baking it, the young worms enter the intestines, and grow to a great length.

There are no very definite symptoms that will enable one to tell when a person has a tapeworm. The symptoms, if any, are indigestion, griping pains; the person becomes pale, has headache, and complains of dizziness. The only sure evidence is finding the small joints of the worm in the faeces.

Treatment

The aim in the treatment is to expel the head of the worm; for unless the head of the worm is expelled the worm will continue to grow. The method of treating is as follows:—

During the two days preceding the treatment, no solid food should be eaten. Give only rice-gruel, soft-boiled eggs, and soups. Put the patient to bed, and keep him there for a couple of days. On the morning of the first day, give a dose of castor oil; and do not give any food for the remainder of that day. On the second day, for a five-year-old child, give half a dram (30 drops) of Oleoresin of male fern. It is unpleasant to the taste, and should be given mixed with some congee (rice-gruel). In a couple or three hours' time give another half dram of the male fern. The patient must, during all this time, be kept lying quietly in bed. Four or five hours after taking the second dose of male fern, a large dose of castor oil should be given. When the child's bowels move, receive the bowel movements in a clean vessel containing warm water, in order that it may be seen whether the head of the worm has been expelled or not.

The prevention of tapeworm infection is dependent upon disinfecting or burying all human faecal matter, and in cooking thoroughly all meat used for food. Since dogs and cats harbour tapeworms in their intestines, they should not be allowed in the house; and on no account should they be allowed to lick the faces or hands of children.

The Trichina

This is a worm that is contracted by eating pork. They do not remain in the intestines, but pass to the muscles and cause pain. There may be some fever. There is pain in the muscles of different parts of the body. The pains are intensified by moving the limbs, but there is no pain in the joints. The muscles are tender to pressure. There is also swelling under the eyes, and shortness of breath.

There is no treatment that is very efficacious. Give castor oil and a daily enema to help in getting rid of any of the worms that may be in the intestines. There is nothing that can be done to get rid of the worms that are in the muscles throughout the body. To avoid contracting the disease, it is only necessary to forego the eating of pork.

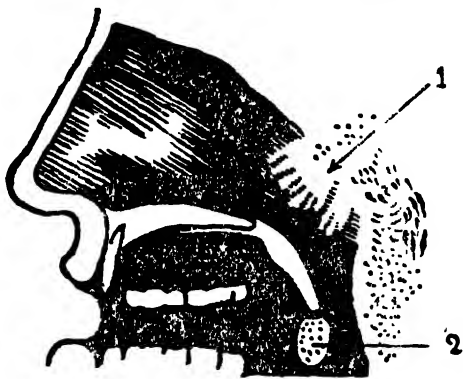
CHAPTER 36

Tonsils — Adenoids—Colds—Sore Throat —Bronchitis—Influenza

Tonsils and Adenoids

Running nose, sore nose, snuffling, sores about the mouth and nose, red eyes, dullness in studies, snoring, sleeping with the mouth open, putting the hands to the ear as though the ear ached, staring with open mouth,—these are some of the symptoms manifested by mouth-breathers. Breathing through the mouth is, in most instances, due to adenoids or large tonsils. Children who are poorly nourished and who live in unhygienic surroundings, are very liable to develop adenoids. Sucking of the thumb, or sucking a rubber nipple, called a "pacifier," may also cause adenoids.

Adenoids grow from the back part of the throat where the nose and throat join. They are shaped like a little head of cauliflower, coloured red. They are somewhat similar to the warts that grow on the hands. They hang from the back part of the nose and stop it up, causing the child to breathe through its mouth. (See the accompanying illustration.) When air is breathed through the mouth, much dust and many more germs are taken into the body than when air is taken through the nose. Children with adenoids often have earache. There may or may not be a small amount of pus running from the ear. If there is earache or running from the ear, there is not only



1' Adenoids '2' Patch on Tonsil

danger of the child becoming deaf, but a very serious disease called brain fever may be the result.

Have the child open its mouth, press its tongue down with the handle of a spoon, and see if the tonsils project out into the throat. When tonsils are not diseased, they do not project out into the throat, and they have the same pink colour as the surrounding parts of the throat. The enlarged tonsil is of a deep red colour, or it may be covered with patches of white material, or at times there is yellow pus on it. If the tonsil becomes enlarged suddenly, the child complains of sore throat, and has fever and headache. The pain in the throat is aggravated when food or drink is swallowed.

Examine the child and see if there are some lumps under the skin in the neck and back of the ears. These are enlarged glands. They always mean that there is some poison or irritation in the nose, throat, ears, or teeth, which should be removed at once in order to keep the rest of the body well.

Adenoids and large tonsils stop up the nose and throat so the child cannot breathe properly. As a result, the body does not receive a sufficient supply of air.

Large tonsils and adenoids hold poisonous germs that may be carried by the blood to the heart and cause heart disease; or to the joints, and cause rheumatism. The germs in the tonsils and adenoids are also carried to other parts of the body, and cause other diseases. They prevent the body growing properly, so that children with adenoids have stunted bodies. The germs from adenoids and enlarged tonsils slowly poison the child's body, so that he is slow in his studies. There is also a much greater chance of such children getting diphtheria, scarlet-fever, and measles. If one of these diseases is contracted, the child usually has a severe attack, and gets well very slowly.

Treatment

If a child has adenoids, there is but one treatment, and that is to take him to some hospital or competent surgeon and have the adenoids removed. Do not delay, thinking that the adenoids are not serious; but by all means seek the earliest opportunity to have the adenoids removed, and thus prevent

the child from having an ill-formed face and a stunted body, and from contracting numerous serious diseases.

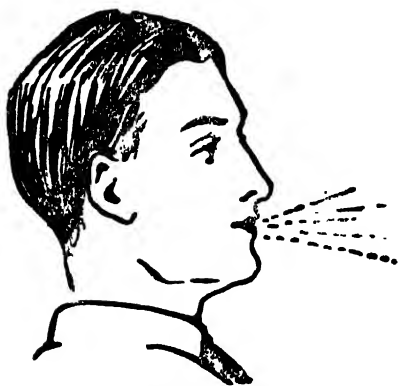
If the tonsils are not constantly enlarged, but the swelling and pain have come on suddenly then give a dose of castor oil or Epsom salts, and apply fomentations to the sides of the neck under the jaw. Also use prescription No. 9 or 10 (see Chapter 50), as a gargle. In addition to using this medicine as a gargle, it should also be used to swab the swollen tonsils several times a day. If the tonsils remain large, or even if they are not very large, but continually have on them patches of yellowish pus, they should be taken out.

Colds

More people suffer from common colds than from any other single ailment. Some people have "a cold in the head," or a "cold on the chest," several times during the year, barely recovering from one attack before a second one comes on.

Most colds are due to germs. Colds are "catching" just the same as measles or pneumonia is "catching." Chilly weather and cold winds do not cause colds. Arctic explorers who travel in the coldest weather and are constantly exposed to cold winds, do not suffer from colds until they return and mingle again with their fellow men. This shows that colds are contracted from people who already have colds. Common colds occur in epidemics, just as do cholera or measles. It is a very common occurrence to have one member of a family contract a cold, and following that all the other members of that family have colds.

While common colds are never fatal, yet they prepare the way for such serious diseases as pneumonia, tuberculosis, rheumatic fever, and deafness.



Spreading Cold-Germs by Coughing

Prevention

The prevention of colds depends upon several factors. One of the most important is keeping the body in good condition by proper diet and daily exercise. One who does not take enough exercise daily to get up a sweat, and yet eats heartily, will be troubled a great deal with colds. Overeating and lack of exercise are two of the commonest causes that prepare the way for colds. Bathing the whole body daily with cool water, is an excellent way to keep the body in a condition of resistance against colds. Avoid contact with persons who have colds. The place where a person is most liable to contract a cold is in a room with other people where the doors are kept closed, and in trains and public gathering places. If a person with a cold, coughs or sneezes in another's face, there is great danger of that person "catching cold."

The common drinking-cup, the towels used in common to wipe the face and hands, tobacco-pipes, toys, fingers, and any object that may be contaminated by any of the secretions from the nose and mouth, are all common carriers of germs that cause colds. Living in poorly ventilated and poorly lighted rooms, breathing dusty air, exposure to cold or wet, sitting in the wind when the clothes are wet with sweat, loss of sleep, and overwork,—all prepare the way for one to catch cold. Those who breathe through the mouth, and those who have decayed teeth and enlarged tonsils, have frequently recurring attacks of colds. A knowledge of these facts should lead one to take heed and avoid those things that cause colds.

Treatment

If treatment is begun early, a cold may be cut short. When one has symptoms of an on-coming cold, such as sneezing, watering of the eyes, slight headache, and stuffiness of the nose, he should at once determine to prevent the disease progressing. One of the best methods is to get out of doors and exercise vigorously, by digging in the garden, walking rapidly, or by doing any kind of physical work. Exercise until the perspiration flows; then take a bath in hot water. After getting out of the hot water, dash a pan of cold water over the body, and dry the skin thoroughly with a dry towel.

If the cold has already run for a day or two, then take a hot foot-bath and leg-bath (see Chapter 20). Keep adding

hot water, so that the water becomes very hot. While the feet and legs are in the hot water, drink several pints of very hot liquid, either plain hot water, or hot water in which there is lemon or lime-juice. Keep the feet and legs in hot water until perspiration begins to run, and in this way continue the sweating. Upon arising in the morning, sponge the body with some warm water, and during that day restrict the diet to rice-gruel, soft-boiled eggs, and fruit. This treatment is very efficacious in curing a cold.

It is well, before taking the hot leg-bath, to take a dose of some cathartic, such as Epsom salts, or Glauber's salts, or castor oil. Or, in place of these, take an enema with water at 106 degrees Fahrenheit (see Chapter 20). Use prescription No. 9 or 10 (see Chapter 50) to gargle the throat three times a day. If the nose is stopped up or is running a foul-smelling discharge, some of the medicine used for a gargle should be warmed and snuffed up into the nose.

If the cold has been running for some time, and there is a constant discharge, it is well to wash the nose frequently in the way just mentioned, and then inhale prescription No. 16 (Chapter 50).

Sore Throat

A common cause of sore throat is an inflammation of the tonsils. The treatment of this condition has been mentioned in the first part of this chapter. In any case of sore throat, the proper treatment is to apply fomentations (see Chapter 20) to the neck for fifteen minutes three times a day, and every two hours use prescription No. 9 (see Chapter 50) as a gargle. It is also well to make a swab and swab the throat with this same medicine.

Bronchitis

The common name for this ailment is "a cold on the chest." Most colds first involve the nose, and then later the germs get down into the windpipe and the lungs. There is a cough which at first is dry and hacking; in the course of a few days some sputum is raised by the cough.

Every case of "cold on the chest" should be treated vigorously; for the danger is that it may result in some serious disease such as pneumonia or tuberculosis.

Treatment

In the early stages of a cold on the chest, the treatment is the same as that outlined for a cold, with the addition of fomentations to the front of the chest about three times a day. If the cough is dry and painful, prescription No. 18 (see Chapter 50) may be used in addition to the fomentations.

A cough that continues for several weeks is a very serious matter for it is probably due to tuberculosis; and the treatment given in Chapter 38 should be used.

Those who use tobacco are often troubled with a cough that ceases as soon as they stop smoking tobacco.

Influenza (La Grippe)

Epidemics of influenza occur every year. The symptoms are very much the same as in common colds, but much more severe. At the outset there is a stuffy nose, sneezing, watery eyes, headache, backache, a dry cough, and some fever.

This is a very serious disease. It kills large numbers of old people yearly. When influenza attacks those who are already weak, it often causes death.

Treatment

Influenza is highly contagious. If one member of the family gets the disease he should be careful to hold a handkerchief over the mouth or nose when coughing or sneezing. He should expectorate into pieces of paper, which can afterward be burned. He should not use the same towels, cups and eating-utensils used by other members of the family.

At the onset of the disease, the patient should go to bed and the hot foot-and leg-bath recommended for the treatment of colds (mentioned in the former part of this chapter) should be used. The patient should drink large quantities of water or lemonade, at least half a pint or more every hour. Keep the feet warm. It may be necessary to keep at the feet bottles filled with hot water. Restrict the diet to gruels, soups, soft-boiled eggs, and fruit. For the cough, use the treatment outlined in this chapter for "a cold on the chest." Use prescription No. 9 (see Chapter 50) three times a day as a gargle. This will keep the mouth and throat clean, and thus prevent the disease involving the ears and causing deafness.

CHAPTER 37

Pneumonia (Lung-Fever) and Pleurisy

Lung-fever is a disease of the lungs caused by the pneumonia germ. The disease usually begins suddenly with a severe chill. The temperature rises quickly and there is pain in the chest. There is a short, dry, painful cough, and the rate of breathing is greatly increased. The patient lies on the right or left side, and not on the back. The face becomes flushed especially one or both cheeks; fever-blisters usually appear on the lips. The sputum expectorated is tinged with blood. After the fever has continued high for seven, nine, or ten days, there is an abrupt drop, usually accompanied by an abundant sweat. Following this, the patient feels more comfortable, and unless some accident occurs, will continue to improve, and will recover in a couple or three weeks. Some die before the drop in temperature. After the temperature has dropped, death may occur as a result of the pneumonia, or as a result of contracting tuberculosis of the lungs. Three or four out of every ten who contract pneumonia, die of the disease. Those who are given to using intoxicating liquors freely, rarely recover from an attack of pneumonia.

Prevention and Cure

The germs of pneumonia are distributed widely. We cannot escape them; but if the body is kept strong and healthy, the pneumonia germ cannot damage it. The natural power of the body to resist disease germs is weakened by the use of any form of wine or tobacco; lack of proper food, or too much food; living in dark, poorly-ventilated houses; sleeping with doors and windows closed, or the head covered; sitting humped over; and by catching cold.

Pneumonia is spread through the discharges from the nose, through the sputum, and from coughing and sneezing. Pneumonia may also be contracted by using a drinking-cup that is used by others. By breathing dusty air on the streets, or the dusty air caused by sweeping the house, we may

breathe in pneumonia germs, and thus contract the disease, Having mentioned the ways in which the disease may be contracted, it will be evident to all what care must be taken in order to avoid the disease.

Pneumonia cannot be cured by drugs. Good nursing is more effective than medicines. Wherever possible, the patient should be in the open air. He may be on a bed outside the house, protected by some kind of sunshade. Keep the patient's feet warm; if necessary, place beside the feet bottles containing hot water. Give, at the outset, a dose of Epsom salts, and an enema with water at a temperature of 100 degrees Fahrenheit. Lemonade, lime-juice or plain water, should be given freely to drink. The food should be liquid, such as rice-gruel, soups, or eggs, either soft-boiled or raw. It is well to use the enema daily, to ensure a bowel-movement.

Very hot fomentations (see Chapter 20) applied to the painful part of the chest for five minutes every hour, will help to relieve the pain and coughing. Slowly sipping very hot water also relieves coughing. An essential part of the treatment is to take a large piece of very thin cloth, and fold it into six or eight layers. The cloth, when folded, should be large enough to cover the front of the chest. This cloth should be wrung out of the coldest water obtainable; wring the cloth lightly, just so it will not drip. Apply this cloth to the front of the chest, and place over it a large piece of dry flannel cloth or a piece of blanket. Re-wet the cloth every fifteen or twenty minutes. Dry the skin thoroughly every time the wet cloth is changed. If ice can be secured, wrap broken pieces of ice in a cloth and lay over the affected part of the chest. There should be two or three layers of cloth between the ice and the skin. Keep the feet warm while the cold cloths are being applied to the front of the chest. If the fever is high, sponge the patient's body with cool water two or three times daily. Use the same method of sponging as is described in Chapter 31. (See also, Note, page 101.)

The patient's sputum is very dangerous, because it contains great numbers of pneumonia germs. He should expectorate into pieces of paper or old cloth, and these should all be burned.

Pneumonia in Children

The treatment of pneumonia for a child is very similar to that for an adult, outlined in the first portion of this chapter. The child should be in a place where there is a free vent of air. Keep the feet warm; reduce the amount of food that the child has been accustomed to take. Use the cool cloths on the chest and keep the feet warm, the same as outlined in the first portion of the chapter. Mustard-plasters may be used over the painful part of the chest. Use only one part of mustard to six or seven parts of flour. Mix with hot water, and spread on a thin layer of cloth. Apply this to the skin. As soon as the skin is well reddened, the mustard plaster should be removed. It may be re-heated and applied again for a few minutes in the course of four or five hours. The child must be given all the water that he will drink; or, better, give water containing lime or lemon-juice. Give a small warm-water enema daily. If the child coughs continually, but does not raise any sputum, and if the cough prevents sleeping, prescription No. 18 (see Chapter 50) may be given.

Following Pneumonia, Guard Against Tuberculosis

Following pneumonia, either in a child or an adult, tuberculosis is very common. It is important, therefore, that a pneumonia patient should not leave his bed and begin working or going about until he feels well and strong. It is also especially important to guard against taking cold, and to guard against sleeping in a room with the windows and doors shut. Take deep-breathing exercises daily, according to the method outlined in Chapter 6.

Pleurisy

Pleurisy is an inflammation of the thin membrane that covers the lungs and lines the inside of the chest-wall. There are always pains in the sides of the chest, due to pleurisy, in every case of pneumonia. Sometimes pleurisy results from a blow on the chest, or from catching cold. The first thing noticed is a chilly feeling; then some pain is felt, usually only on one side of the chest. The pain is "stabbing," and is increased by taking a deep breath, and also by coughing. There is some fever. The pain in the side is the principal

symptom. The patient cannot lie on the affected side. after a few days, some fluid usually collects between the two layers of the pleura, and after that the pain is less.

Treatment

As a rule, the fever in a case of pleurisy lasts only a week or ten days. If the patient continues to feel hot and uncomfortable every afternoon and evening for two or three weeks, it means probably that he has tuberculosis, and in that case the methods outlined in Chapter 38 must be followed.

A patient with pleurisy must be kept in a room where the windows and doors can be open to let in the fresh air. Give only liquid foods. Apply a bandage or a strip of adhesive three inches wide about the chest. Have the patient breathe out, and then when the lungs are empty and the chest is contracted, apply the bandage, and fasten it. This prevents free movement of the chest, and reduces pain. To relieve the pain, apply also hot fomentations for twenty minutes or more every two hours. The hot-water bag, wrapped in a cloth wrung out of hot water, can be applied to the chest in place of the fomentations. Give a cathartic (Epsom salts or castor oil). Sometimes cold cloths to the chest give the patient great relief. The cold should be tried when the hot fails to relieve the suffering.

If a child does not recover in a few days, but continues to be short of breath, but without pain, he should be taken to a place where he can be cared for by a competent physician. If the patient must be treated without a physician, the affected side of the chest should be treated with fomentations (See Chapter 20), three times a day. First apply the hot fomentation. As soon as it begins to get cool, take it off and apply to the same spot for a few seconds a cloth (made by folding thin cloth to make two or three layers) wrung out of the coldest water obtainable. Then put on another hot fomentation and following it apply the cold cloth for a few seconds. Alternate the hot and cold cloths in this way for twenty minutes or more. If the pleurisy does not disappear in a week or two, the treatment for tuberculosis should be used, as outlined in Chapter 38.

CHAPTER 38

Tuberculosis (Consumption)

Tuberculosis causes the death of someone in India about every minute night and day. This means that there are an immense number of people in India who have the disease.

Tuberculosis is such a scourge that it causes one-sixth of all the deaths in the world. Someone dies of tuberculosis every second, day and night, from one end of the year to the other. These statements of actual figures show clearly that tuberculosis is a greater scourge than small-pox or cholera.

Tuberculosis is not as much dreaded by the ordinary person as it should be. This is due to the fact that consumption does not produce as much suffering as do many of the ordinary diseases, and it is, moreover, a slow disease; for as a rule it does not kill quickly as do cholera and bubonic plague. Those who contract tuberculosis are usually sick for several months or for a year or more before they die. The long period of illness, and also the fact that tuberculosis is a disease which afflicts those who are in the active period of life (those who are 20 to 40 years old), makes it a very expensive disease.

(There was a time when it was thought that tuberculosis was an incurable disease, and those who contracted the disease gave up hope and made no effort to get well. This was a mistaken idea, for during recent years it has been proven that almost every case of tuberculosis can be cured if proper treatment is begun shortly after the onset of the disease.

Tuberculosis not only is a curable disease, it is also a disease that is preventable.

Since the disease is preventable, and if treated shortly after its onset, is curable, therefore it is of the greatest importance that all should understand the symptoms, the methods of prevention, and the treatment.

Symptoms

The cure of the patient depends upon the early discovery of the disease. For this reason all should know the first symptoms of tuberculosis.

Individuals who have thin, flat chests and stooping shoulders are very prone to contract this disease. Slow, gradual loss of weight is one of the first symptoms that many afflicted with tuberculosis show. Paleness of the skin, and at times bright red cheeks is a rather common early sign of this disease. Frequent attacks of catarrh is another early symptom. Some who contract tuberculosis do not know that they are sick, but they get tired easily and in the course of a few weeks they will complain of having a mild fever in the afternoon and possibly a hacking cough in the morning or evening. A little later they may have night-sweats and notice that the sputum is red (due to its containing blood). There may, or there may not, be pains in the chest. Loss of appetite is a common early symptom. Another early symptom is change of disposition, so that one who was cheerful and very agreeable to get along with becomes irritable and easily depressed.

In the sputum it is often possible to find the germs that cause the disease (the tuberculosis bacillus). In Chapter 21 is a picture showing how these germs look when they are magnified 1,000 times. Whenever it is suspected that one has tuberculosis, it is well to get a physician to examine some of the sputum to see if it contains the tuberculosis germs or not. But it should be known that many people have tuberculosis in whose sputum no tuberculosis germ can be found. Therefore if there are other symptoms of tuberculosis, the treatment for tuberculosis should be used even if no germs are found in the sputum.

The symptoms given above are the common symptoms of tuberculosis of the lungs. Tuberculosis is not only a disease of the lungs, but it also attacks other parts of the body. The disease may be in the throat, and in addition to causing the symptoms mentioned above, there is hoarseness and painful swallowing. Tuberculosis of the bones is common. The hip joint is often attacked, and this results in the shortening of one leg. When the disease is in the backbone, a hump or a side curve develops in the backbone. Scrofula is a form

of tuberculosis seen in children. There are lumps in the neck both before and behind. The child is usually pale and not robust, and frequently has sore eyes and sore ears.

How Do the Germs of Tuberculosis Get Into the Body

1. By being breathed into the lungs with the air we breathe.

2. By being taken into the body with the food we eat. Many cows and other animals have tuberculosis. By eating



How Disease Germs are Spread

the flesh of these animals or using their milk one may contract tuberculosis. If those who have tuberculosis handle food in the market or in the kitchen, tuberculosis germs from the nose, mouth, and hands will get on the food, and by eating this food we may contract the disease.

3 By getting into the body through an injured place in the skin.

What Must Be Done to Check the Spread of Tuberculosis?

A patient suffering with consumption should know that he spreads the disease by coughing and spitting. When he

coughs or sneezes, many little droplets from the nose and throat are thrown out of the mouth and nose. There are many tuberculosis germs in these droplets, and as the droplets are mixed with the air and dust, the germs are breathed into the lungs of healthy people and result in their contracting the disease. The sputum of those who have this disease contains innumerable tuberculosis germs. It should never be expectorated in any place where it will have a chance to dry, and become dust, for without question the commonest way of spreading the disease is by means of the sputum.

Those who have the disease should never cough or sneeze without holding a cloth or a paper before the mouth and nose. If paper is used, it should be burned afterwards. If a cloth is used, it should be kept for this purpose and should not be used as an ordinary handkerchief. It should either be burned after use, or else boiled.

When in his own home, the one sick with tuberculosis may use a spittoon which has a cover. Keep the spittoon clean on the outside and also keep the cover closed so that flies will not alight on it and carry the germs about and in this way cause other people to catch the disease.

When an individual with tuberculosis is away from his home, he should carry with him a pocket flask. There are many kinds of these. A very serviceable one could be made by any tinsmith. A piece of thick paper may be folded in the shape of the flask and of a size that will just fit within it. When the flask is emptied, this inner paper lining can be taken out and the paper together with the sputum that is in it should be burned. This pocket spittoon should be boiled for five or ten minutes every day or two.

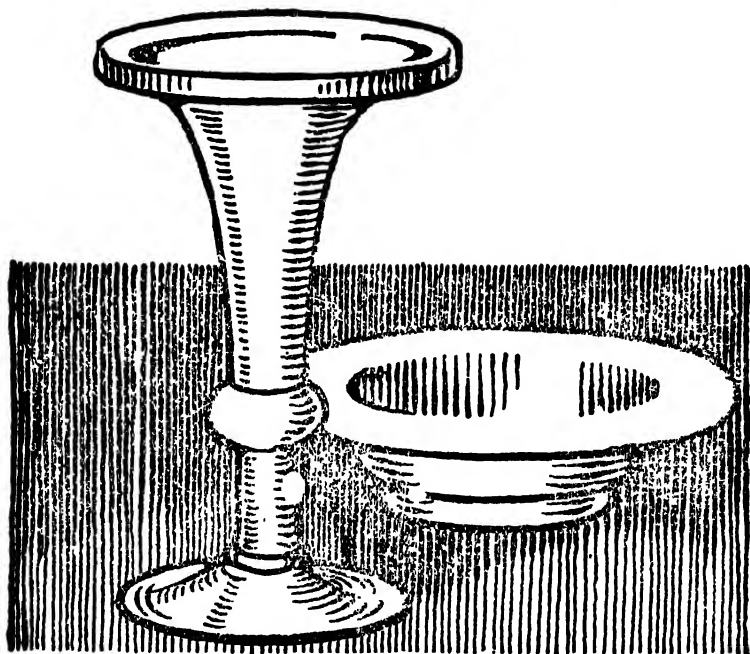
One who has tuberculosis should not handle the food that is to be eaten by other people.

One who has this disease should never swallow his sputum. If this is done the disease germs begin to grow in the intestines and are almost sure to quickly cause death.

How to Avoid Contracting Tuberculosis

The most active agent for spreading tuberculosis is the sputum of those who have this disease. The dust that flies about on the streets, and in the shops, theatres, shows, trams,

and railway stations is made up in part of sputum expectorated by sick people, and therefore such dust contains tuberculosis germs. It is unavoidable but that everyone will sometimes get tuberculosis germs into the body, but it is known that when the body is strong and healthy, and the nose is free from colds, the blood can destroy a few tuber-



Some Types of spittoons

culosis germs. If the body is weakened by poor or insufficient food, overwork, or dissipation of any kind, the body loses this power to destroy germs. People who use intoxicating liquor in any form are more likely to get tuberculosis than others, and having once contracted the disease, there is very little hope of recovery.

Tobacco using injures the lungs and throat, and prepares the way for one to contract consumption very easily.

When one lives where the houses are built close together, as in cities or towns, there is much more danger of con-

tracting the disease than if one lives in a community where the houses are not crowded together closely. /

The kind of a house in which one lives has a great deal to do with the health of the body. If the house is small and many people live in it, it is certain that there will be much sickness. Not more than two or three people should sleep in the ordinary-sized room, and this number should never sleep together in one room, unless the room has two or more large windows. There should be at least two large windows in the walls of every room.

A window must be kept open at night, for when closed the air in the house becomes foul and injures the health.

In dry weather, when there is much dust, always sprinkle water on the dusty places before sweeping.

If you would avoid tuberculosis you must keep your house and its surroundings clean, so that flies may be avoided; for flies carry consumption. See Chapter 48 concerning how to avoid flies.

It is dangerous to use any cup, spoon, dish, towel, or wash-pan that has been used by one who has tuberculosis, unless the article has been boiled since the sick person used it. Tuberculosis may be spread by the use of meat and milk and therefore before eating meat it should first be cooked thoroughly, and milk should be boiled before using.

People who work at certain trades are very liable to contract consumption,—such trades as those in which the worker must breathe dusty or smoky air, for example, cigar and cigarette makers, stone cutters, and workers in rice polishing mills. Tuberculosis is very common among those who sit bent over, as tailors, hat weavers, basket weavers, and typesetters. Many students in the schools and colleges contract tuberculosis because they sit bent over their study tables much of the time and do not take exercise out-of-doors daily.)

How to Cure Tuberculosis

Let no one who has tuberculosis lose hope. Tuberculosis is curable. When anyone has contracted the disease, the earlier the treatment is begun the more certain it is that he can be cured. This shows how important it is that one who has any of the symptoms mentioned in the first part of

this chapter should begin at once the proper treatment for the cure of the disease.

The only cure known for tuberculosis is to increase the bodily strength, so that the body itself will resist and gradually destroy the disease germs. This is a slow process; therefore one who has the disease should know that he cannot get well in a week or two. The best means of increasing the bodily strength and of curing the disease are, plenty of fresh air all



Keep the Tuberculosis Patient in the Open Air

the time, plenty of good food, out-of-door life, rest, and freedom from worry.

Special hospitals have been built in a few places for the treatment of tuberculosis, and wherever possible it is advisable to go to one of these hospitals. In several of the large cities dispensaries are conducted especially for the treatment of tuberculosis patients. In some of these dispensaries advice and medicine are given without charge to poor people.

In case the consumptive patient cannot leave his home he should not lose hope, because, by following the instructions given below, the disease can be cured in the home.)

The patient must have a room that is for himself alone and is not used by others. This room should have large

windows which should be kept open day and night. A comfortable bed should be provided. (During the daytime it is well for the patient to be out of doors under the shade of a tree in a hammock. The patient's room must be kept clean by frequently scrubbing the floors and walls with hot water (in which there is a large spoonful of carbolic acid or chloride of lime to every large glassful of water).

The patient's pillow and bedding should be hung out in the sun for several hours every sunny day.

Give the patient the best and most nourishing food that can be secured. Eggs, milk, cream, well-cooked rice, well-cooked beef, fresh green vegetables, and fresh fruits are all good nourishing foods for a consumptive patient. See Chapter 5 concerning proper foods and how to prepare them.

Keep the body clean by frequent bathing. The clothes should also be kept clean.

Keep the teeth clean by brushing them night and morning. See Chapter 4 concerning the importance of caring for the teeth.

The consumptive patient must keep quiet if he has any fever. Even if there is no fever, great care must be taken not to move about so much that it causes fatigue or a fever.

The consumptive patient must take care in order that others in the family do not contract the disease from him. The patient should have his own knife, fork, spoon, cup, dishes, towels and bedding. These must be kept for the use of the patient and no one else allowed to use them. They should not be washed with the articles that the other members of the family use.

No consumptive patient should kiss or fondle any child and he should never handle any food that is to be eaten by others.

Keep flies out of the patient's room, if possible, but by all means do not allow them to get at the patient's sputum. Keep the spittoon covered.

Another important thing in the cure of consumption is cheerfulness. The one who is afflicted with tuberculosis will find that great benefit is secured by trusting in God; for God can heal all of man's diseases. If one loses hope and believes he will die, it is almost certain that he will die.

With reference to medicines, it is never safe for one who has consumption to take medicine unless a physician has examined him and given him a prescription. Cod liver oil is of value in treating the disease, but it is a food rather than a medicine. Cod liver oil combined with malt extract is also helpful in treating the disease. Directions concerning the amount of cod liver oil to be taken daily will be found on the label of the bottle. A small spoonful three times a day with meals is usually sufficient.

It is important that the patient's bowels move daily. See instructions in Chapter 29. Several glassfuls of water should be drunk every day in order to assist in washing out poisonous waste matters from the body.

If the cough is troublesome, the same treatment should be used as is mentioned in the part of Chapter 36 that describes the treatment for colds and bronchitis.

Sometimes those with tuberculosis have a cough in the morning. This may be stopped by drinking daily before breakfast a glassful of very hot milk or a glassful of hot water to which has been added 15 grains (a fourth of a small tea-spoonful) of baking soda.

If there is much fever the patient may be sponged with a small amount of cold water. Continue the sponging with cold water for half an hour or more. (See Note, page 101).

When there is spitting of blood the patient should keep very quiet. The spitting of blood is often caused by the patient lifting something heavy, or by exercising too vigorously. If there is spitting of a large amount of blood, cloths wet in ice-water should be applied to the front of the chest. The cloths should be frequently re-wet in order that they may be kept constantly cool. If no ice can be secured, the cloth may be wet with cool water and then held by two of its corners and swung back and forth in the air a few times. This will make it very cool.

After one has had tuberculosis and has apparently recovered, he should remember that there is great danger of a recurrence of the disease, and the greatest care must be taken to guard the health, and avoid all those things mentioned in this chapter which lead to contracting the disease.

CHAPTER 39

Malaria

Malaria is one of the very common diseases of India, and yearly causes the death of many thousands of people. Malaria is one of the most easily preventable diseases, because modern scientists have absolutely proven that it can be contracted in but one way, and that is through being bitten by a mosquito that has previously bitten some person who has malaria.

Malaria is caused by a malaria germ that grows in the patient's blood. When the mosquito bites a man who has malaria, it sucks up into its stomach some of the man's blood. There are malaria germs in this blood, and in the course of some days when this mosquito bites another man, it injects into his body some of these malaria germs, and this soon results in his having chills and fever.

Not all mosquitoes carry malaria. The kind that has most to do with carrying this disease can be distinguished by the appearance of its body and by its attitude when standing on something. The illustration shows plainly the differences between the malaria-carrying mosquito and the common mosquito.

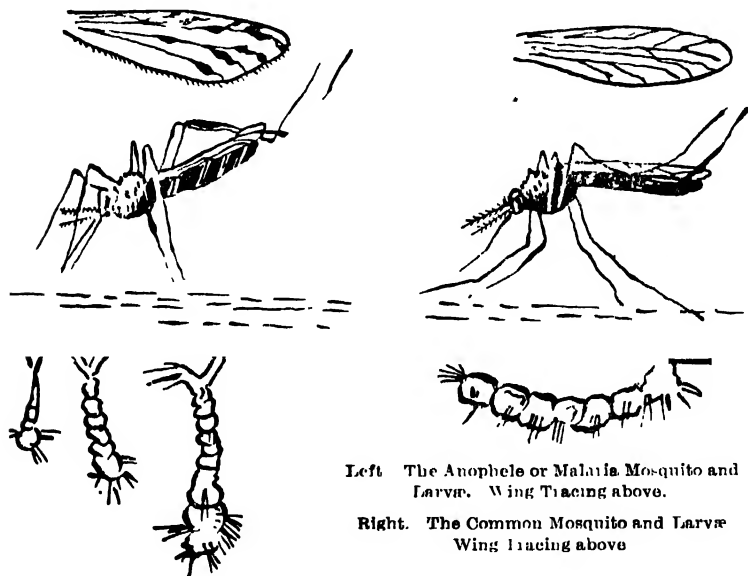
Although the malaria-carrying mosquito is not so common as some other kinds, yet it may be stated that as a general rule it is always present wherever there are any other kinds of mosquitoes.

How to Prevent the Spread of Malaria

To prevent the spread of malaria, all that is necessary is to destroy the mosquitoes. The most effective way to do this is to prevent the mosquitoes from breeding. The mosquito can breed only in water. The female lays her eggs on the water in a pond, a rice field, a puddle, a bucket, a jar, an empty tin can, an empty cocoanut shell, or on the water in anything that will contain water. The eggs change into "wigglers" (larvæ) in two or three days. Everyone is familiar

with the shape and movements of the small wrigglers so commonly seen in ponds and puddles. In about two weeks' time the wrigglers change into fully grown mosquitoes.

To prevent the mosquito breeding, it is necessary to drain the ponds and puddles. Mosquitoes do not breed in water that is flowing. Ditches and drains should be dug deep, and the sides of the ditch should be perpendicular and should



Left The Anopheles or Malaria Mosquito and Larva. Wing Tracing above.

Right. The Common Mosquito and Larva. Wing Tracing above

be kept free from grass and weeds. In many places, during the rainy season it will not be possible to drain away all the water, and so prevent water collecting in the ponds and puddles. If a pond cannot be drained, then put a large number of small fish in it, or keep ducks; for both fish and ducks will eat the "wrigglers," and in this way prevent the mosquitoes from multiplying. The surest and most effective way to prevent mosquitoes from breeding in ponds, or in any collection of water, is to spray kerosene on the surface of the water. The oil spreads out on the water and makes a thin layer that prevents the "wrigglers" from getting air, and in this way they are quickly killed. This does not require a large amount of oil. For a large barrel, or similar water container,

a large spoonful of the kerosene is sufficient. A large glassful of kerosene would be sufficient to spray over a pond 20 feet long and 20 feet wide. If rain falls every day or two, the pond should be sprayed once a week.

Mosquitoes do not fly very far from the place where they breed. For this reason one can avoid having mosquitoes in his house by spraying with oil all the ponds and collections of stagnant water within 200 feet of his house. Care must be taken to see that water is not allowed to collect in old tin cans, water jars or bamboo stumps. If there is a drain along the edge of the roof it should be cleaned every few weeks so that water will not collect in it.

There is one other method to prevent malaria that should be used by every person, old and young, and that is to sleep under a mosquito net every night. The mosquitoes that spread the malaria seldom bite people during the day time; they usually bite only after sundown. The mosquito net should be of a fine mesh and should be tucked in well to keep out the mosquitoes. This mosquito net should be used every night. When leaving home to travel, the mosquito net should certainly be taken along and used every night. The children's beds should also have mosquito nets.

Symptoms

The common symptoms of malaria are known to almost every one; they are chills followed by fever, sweating, and headache. As a rule before the chill the patient may have a feeling of weakness. There may also be headache, nausea, and vomiting. Sometimes in the case of small children there may be convulsions. Following the chill the fever goes up to 103 or 104 degrees Fahrenheit. The fever lasts for two or three hours, and then the patient begins to sweat; following this the fever goes down. The attacks may come daily, but they usually come every other day, or at intervals of two days. The attacks may come irregularly, there being only one or two attacks a week or only one or two attacks a month.

There are many kinds of malaria. Some patients with malaria may have symptoms very similar to typhoid; in other patients the most prominent symptom may be intense headache. In children sometimes the only symptom of malaria is diarrhoea and wasting.

Treatment

The most effective remedy known for malaria is quinine. In cases where the chills come on at a definite hour every other day, or every third day, the best way of giving quinine is as follows: on the evening of the day before the chill is expected take a dose of cathartic (such as Epsom salts or castor oil). If the chill is expected at three in the afternoon then take 15 grains of quinine at nine in the forenoon. Take another 15 grains six hours before the next attack is expected, and continue this method of taking quinine for a couple of weeks. The malaria may be apparently cured by one dose of quinine. But do not be deceived and stop taking quinine; for if this is done the malaria will be sure to recur before many weeks. Several doses should be taken in order to make sure of destroying all the malaria germs in the body.

If the chills do not come at any regular time, then the best treatment is to take 10 grains of quinine after the morning meal and 10 grains after the evening meal. Continue taking 2 ten-grain doses every day for a week or ten days. Then take five-grain doses twice a day for two or three weeks, or longer.

Infants suffering with malaria may be given 1 grain of quinine five times a day. Children between one and three years of age may be given 1 or 2 grains five times a day. Children from three to ten years old may be given 2 or 3 grains five times a day.

For a child six years old two grains of quinine may be given every day as a means of preventing the disease. But it is not advisable to continue taking quinine daily for a long period of time, because it injures the health.



CHAPTER 40

Small-pox and Vaccination

Small-pox is one of the most dreaded of all infectious diseases. It is one of the most contagious diseases that afflict men. When small-pox is epidemic, not more than one or two out of every one hundred unvaccinated persons are likely to escape the disease. It attacks old and young, male and female. From of old there is no disease that has been more feared by the people in every land than small-pox, for it is not only very contagious, but when it afflicts the unvaccinated, the death rate ranges from twenty-five to fifty-five per cent. In case the one afflicted escapes death, he is almost absolutely certain to be disfigured with pock-marks on the face or to be blind in one or both eyes.

Physicians are agreed with reference to small-pox that it is caused by some micro-organism, but as yet the specific gerin has not been discovered. It is known that the discharges from the nose and mouth of a small-pox patient, and the dry crusts and scales that fall from the skin when the patient is recovering, are all very infectious. It is known that although the disease is liable to attack ninety-eight or ninety-nine out of every one hundred unvaccinated persons, yet the persons attacked by small-pox who are not addicted to the use of alcohol or tobacco, and who are cleanly in their habits, stand a much better chance of recovery than do those who are given to intemperance and dissipation.

Symptoms

Small-pox does not manifest itself until about twelve days after a person has been exposed to the disease. In the case of children, there may be at the outset a chill followed by headache and severe pain in the back and limbs. The fever may reach 103 degrees Fahrenheit the first day. The eruption usually appears on the fourth day after the onset of the disease, and as a rule appears first on the forehead and

on the front surfaces of the wrists. The eruption is first a dark red papule, but in one or two days it becomes enlarged and filled with a milky fluid, and then in another day or two the milky fluid changes to pus.

Treatment

There is no certain cure for small-pox. The most important thing is careful nursing. The patient should be kept quiet in bed. The room must not be closed tightly, but provision must be made for the sick person to get plenty of fresh air. Give large amounts of cool boiled water to drink. When the fever is very high sponge the patient with cool water. A dose of some cathartic, for example, Epsom salts, should be given every day or two.

The following treatment should be used for the vesicles and pustules: Apply constantly on the face and hands lint soaked in cold water, to which has been added two per cent of carbolic acid. When the pustules begin to dry and form crusts, they should be anointed frequently with vaseline. Do not allow the child to scratch open the vesicles or pustules, for in that case deep pock-marks are sure to result.

The care of the eyes is most important. Cleanse the lids every few hours with a bit of lint soaked in a saturated solution of boric acid. (See Chapter 50, prescription No. 1.) After cleansing and drying the lids, smear a little vaseline on the edge of the lids. Some of the saturated boric acid solution should be dropped into each eye every three hours or oftener.

The mouth and throat should be kept clean by frequently using a mouth wash and gargle. (See Chapter 50, prescription No. 9.)

Vaccination

Previous to 1796 there was no method known by which small-pox could be cured; neither was any method known by which the disease could be prevented; but in that year an English physician by the name of Jenner, discovered the method of vaccination as a means of protection against small-pox.

The micro-organism that produces small-pox in man also produces a somewhat similar disease in the cow, called cow-

pox. The lymph used in vaccinating is obtained from a calf afflicted with cow-pox. This lymph is injected into the body of a man, and a vaccination eruption results at the point vaccinated. It is accompanied by some fever through the whole body. Following this the person is protected for a longer or shorter period so that he would not contract small-pox even though he slept in the same bed with a person who had the disease.



Vaccination

From the time that Jenner discovered vaccination, Western nations began to use the method, with the result that there has been a great decrease in the number of people in Western countries who have died of small-pox during the past 100 years. For example, in 1874 Germany established a law making vaccination and re-vaccination compulsory. This law requires the vaccination of all infants before they are twelve months old, and requires that they be re-vaccinated at the age of twelve. Since that year there has been no epidemic of small-pox in Germany. In one year not more than ten people (this includes infants as well as adults) die of

small-pox in all Germany, among its fifty-four millions of people.

In the Philippine Islands, in the section about the capital city, Manila, the officials in the past paid no attention to the matter of vaccination to prevent small-pox, with the result that 6,000 or more people died of small-pox yearly. Later, when compulsory vaccination was put into effect, there was not a death during the whole of one year in that same section.

Previous to 1885 small-pox was a fearful scourge in Japan. In that year the government passed a law, making it compulsory to vaccinate every infant before it was three months old, and in the following year it must be re-vaccinated, and at the age of ten it must be vaccinated again. From that year until the present, the number of people who die of small-pox in Japan has become smaller and smaller, so that at present there are very, very few deaths from small-pox among the Japanese.

It is now known that vaccination with the lymph from cow-pox is an absolute preventive against small-pox. It is the duty of every father and mother to have each child (whether male or female) vaccinated before it is a year old, and to have it re-vaccinated before the age of ten.



CHAPTER 41

Gonorrhœa and Syphilis

When a man contracts gonorrhœa, there is an inflammation of the urinary passage, accompanied by a whitish or yellowish discharge. The disease is caused by the gonorrhœa germ, and is caught by sexual intercourse with a person who has gonorrhœa. The disease is more common in cities than in country districts. The disease, in a very small number of cases, is contracted from objects, such as towels, or the seat of a toilet which is soiled by the discharges from some person who has gonorrhœa.

The disease in almost every instance is spread by illicit sexual intercourse, and the way to avoid it is to lead clean lives morally.

Symptoms

The disease usually begins in from three to seven days after sexual intercourse. The symptoms are itching, smarting, or stinging pain in the urinary passage, pain at the time of urination, and a watery discharge from the urinary passage. This watery discharge soon becomes thick yellow or white.

The disease, if properly treated, may in many cases be cured in a couple of months. But it usually results in a chronic inflammation of the urinary passage which may cause suffering for many months or years. Gonorrhœa may result in disease of the heart, the joints, the bones, the liver, or the kidneys. When it causes disease of these organs, death may result. It is very common for those who have gonorrhœa, to get the gonorrhœa germs in the eyes. This causes one of the most severe forms of eye disease known, and usually produces blindness.

Treatment

A physician should be consulted. The patient should keep as quiet as possible. It is advisable to go to bed if possible. Drink large quantities of water. It is well to

add lime juice to the water. Take daily a dose of Epsom salts or sodium sulphate. The diseased part should be soaked in warm water three times a day to relieve pain and to keep it clean. All cloths, cotton or paper, soiled with the discharges should be burned, and the hands should be washed thoroughly each time after handling the diseased part, lest the germs get into the eyes and cause blindness. Take half a small spoonful of soda bicarbonate (baking soda) or potassium citrate, in half a glassful of water, three times a day. This medicine should be taken an hour or two after meals. When the swelling and pain have disappeared, then argyrol should be injected into the urinary passage twice daily. A bottle of 12 per cent argyrol should be secured. Inject about half a small spoonful of this into the urinary passage by means of a medicine dropper. Each time after injecting the argyrol, the end of the urinary passage should be held shut between the fingers for at least five minutes to prevent the medicine from running out. In addition to the argyrol, five grains of oleoresin of cubebs or ten grains of copaiba balsam, in capsules, should be taken three times daily after meals. These medicines must be taken daily for several weeks in order to make sure of curing the disease.

It is advisable in every case to secure the advice of a reliable physician. Do not go to those physicians who advertise themselves in the newspapers as specialists in the treatment of gonorrhœa and syphilis. Never use any of the medicines advertised in the newspapers as being sure cures for gonorrhœa. Such doctors and such medicines are all frauds, and they will harm the patient more than they will help him.

Gonorrhœa in Women

A large number of men contract gonorrhœa before they marry. When they get married they transmit the disease to their wives. Many wives because of their modesty do not consult a physician when they have this disease, but allow the disease to continue until their health is seriously injured.

Symptoms

The disease usually begins with smarting and painful urination. There is frequent desire to urinate, and there is a whitish or yellowish discharge from the birth canal. If a woman contracts gonorrhœa it usually, after a short time, causes disease of the womb. This results in leucorrhœa (see Chapter 42). Gonorrhœa is one of the commonest causes of sterility in women, not only this, but the disease usually causes them to suffer continually for many years. More than half of the surgical operations that have to be performed on the reproductive organs of women are made necessary by gonorrhœa.

Treatment

Rest in bed. Vaginal douches the same as those used for leucorrhœa (see Chapter 42), the hot sitz bath daily (see Chapter 20), and the use of the same medicines taken by mouth as those recommended for gonorrhœa in men.

Gonorrhœa in a woman is a very serious disease, and she should be cared for by a skilled physician.

Syphilis

Syphilis is a germ disease that is, in almost every instance, acquired through sexual intercourse with a person who already has this disease. If a mother has syphilis, the disease may be transmitted to the infant in her womb before it is born. Syphilis and tuberculosis are two of the greatest scourges in the world, but syphilis is the more common of the two.

While syphilis is usually contracted by sexual intercourse, yet it may be transmitted in other ways, such as by kissing, by accidental contact with a sore on the patient's body, by the use of tobacco pipes, cups, spoons or dishes that have been used by a person who has syphilis.

Symptoms

The first symptom of syphilis is a small pimple or sore on the sexual organ, or wherever the point of infection may be. This usually appears not later than five weeks after sexual intercourse. A raw sore which feels hard follows the

pimple. Along with this sore, lumps usually appear in both groins.

In six or seven weeks after the first pimple or sore appears, a copper-coloured eruption, resembling measles, appears on the body. There may be other symptoms, such as headache, nausea, and loss of appetite. There may be sore throat. Moist sores may appear on the skin in the armpits and about the bowel opening. The hair often falls out in patches. These symptoms do not all occur in every case of syphilis.

The third stage of the disease comes on after having had the disease for several months or several years. Deep sores develop on different parts of the body. The nose often rots away and leaves simply a hole where the nose was. Pieces of the bone of the skull or pieces of the bones in the parts of the body may rot away as a result of syphilis. Many serious diseases of the brain, nerves, heart and blood-vessels are caused by syphilis.

Treatment

To determine positively whether or not a person has syphilis is of the greatest importance, since the earlier the treatment is begun, the more certain it is that a cure can be effected. It requires, in almost every case, a skilled physician to diagnose the disease.

Recently a method has been discovered by a Dr. Wassermann of testing certainly whether or not a person has the disease.

The most effective remedy now known for syphilis is Salvarsan ("606"). Mercury and iodid of potash are also useful remedies. These remedies should not be taken by a patient without the advice of a physician.

In case one who has syphilis desires to marry, he should not do so until after he has taken treatment for at least two full years, and not until one full year after all the symptoms of the disease have disappeared. If he marries before this, he will surely transmit the disease to his wife and to any child that she may bear. Even a man who has had gonorrhœa or syphilis many years ago, and who now has no symptoms of the disease, may, if he marries, transmit the disease to his wife.

CHAPTER 42

Women's Diseases

Normal menstruation has been described in Chapter 15. There are several diseases that are concerned with the menstrual function, such as absence of menstruation, painful menstruation, profuse menstruation, leucorrhœa (a white discharge that is constantly present between the menstrual periods). There is also a disease called chlorosis, which may appear about the time a girl begins to menstruate.

Absence of Menstruation (Amenorrhœa)

In tropical countries girls may begin to menstruate when they are nine years old; but they may not menstruate until they have reached the age of fifteen. If the girl has reached the age of sixteen or over, and yet does not menstruate, she should be taken to a hospital or to a physician for an examination. If with the exception of menstruation the girl has a well-developed body and is in good health, it may be that there is no disease present, and the absence of menstruation until the age of seventeen or eighteen need not cause any worry. If the girl has reached the age when she should menstruate and yet does not menstruate, but feels pain at regular intervals, it may be due to the mouth of the vagina being closed. If upon examination the mouth of the vagina is found to be closed, the girl should be taken to a hospital for treatment.

If the girl who does not menstruate is thin and "run down," and has no strength, has a cough, and at times feels feverish, she probably has tuberculosis. Such a girl will not menstruate until the tuberculosis is cured.

Menstruation fails to appear in most cases of chlorosis. The treatment of this disease is described below.

Failure to menstruate may be due to the uterus and ovaries being small and undeveloped. This can be determined upon examination by a physician.

Even after menstruation begins, it may be irregular, and there may be at times absence of menstruation for several months without its being caused by any disease. Removing from one place to another where there is a different climate often results in an absence of menstruation for a few months. As a rule, in these cases, during the time the girl does not menstruate she increases in bodily weight and her health is good.

Menstruation ceases during most diseases. Following an attack of typhoid fever, scarlet-fever, and such diseases, there is usually a cessation of menstruation for from three to six months, or more.

Sometimes absence of menstruation is caused by the girl's masturbating. The treatment of such a case consists in breaking off the bad habit.

Absence of menstruation, or cessation of menstruation in a woman who has been menstruating and who is not pregnant, may be caused by fright or by taking cold. In addition to the menses being absent, there are pains in the back which are more severe at the time when menstruation should occur.

Treatment

Since the causes of failure to menstruate are so varied, the treatment in every instance is to remove the causes, if possible. In the case of a married woman, it should be remembered that failure to menstruate is probably due to pregnancy.

The following treatment will be found useful in inducing menstruation: If the girl is poorly nourished, she should be given more and better food. She should not be compelled to work hard. Daily exercise, preferably out-of-doors, and eight or nine hours of sleep every night, are measures that are useful. It is very likely that there is constipation, and this should be treated by the methods outlined in Chapter 29. In treating a girl who has never menstruated, give a hot enema to cleanse the bowel. Following this, give a sitz bath (110 degrees Fahrenheit) for ten minutes. The feet should be in hot water, and a cold cloth should be on the head (see Chapter 20). Prescription No. 19 (see Chapter 50) may be given three times a day, after meals. The hot enema and

sitz bath are also useful in case of suppression of menstruation, (u) to fright, cold, etc., as mentioned above.

Profuse Menstruation

A profuse menstrual flow is nearly always caused by disease of the uterus. It often follows child-birth or miscarriage, when parts of the membranes (after-birth) have been retained, or when the mouth of the womb has been torn. Sometimes germs have gained entrance to the womb through careless, dirty management of child-birth, or through dirty paper or cloths being used at the menstrual period. In these diseased conditions of the womb, menstruation is often painful as well as profuse.

Home treatment is difficult in these cases. It is better to go to a hospital, or to consult a physician. When this is not possible, the hot vaginal douche may be used (see Chapter 20). The water for the douche should be as hot as is bearable, and the external genitals and thighs should be sponged with cold water following the douche. Rest in bed is necessary during the time of menstruation.

Painful Menstruation

Normally, there may be some discomfort at the time of menstruation; but if there is pain, it is due to some diseased condition. A profuse menstrual flow, mentioned above, is accompanied with pain. In painful menstruation, the pain may be in the back or in the side. Sometimes there is a feeling of pressure in the lower abdomen; or there may be sharp pains in the region of the uterus. These pains are not constant, but are intermittent.

Treatment

It will be necessary to go to a hospital, or to secure the help of a physician, in order to cure most cases of painful menstruation. The uterus is usually diseased, and requires treatment that only a physician can give.

The treatment that can be taken in the home is as follows: A few days before the menstrual period is expected, the patient should take a hot foot-bath and a hot vaginal douche. The next day she may take a hot sitz bath. If she is constipated, a warm enema should be taken. (See Chapter

20 for method of using the vaginal douche, enema, etc.) These treatments are best taken just before going to bed. During the time of menstruation, fomentations or hot-water bottles may be applied over the lower part of the abdomen. Drinking freely of hot water is also useful.

Leucorrhœa

In leucorrhœa, there is a white-coloured discharge from the vagina. It is usually accompanied with weakness, back-ache, discomfort in the region of the uterus and some irritation about the mouth of the vagina. In treating leucorrhœa, it is best to consult a physician or to go to a hospital.

The cause may be exposure to cold, overwork, poor food, sexual excess, masturbation, or disease of the uterus. Gonorrhœa is a very common cause of leucorrhœa.

The treatment will depend upon the cause. The best treatment that can be used in the home is the hot vaginal douche. Use from six to eight quarts of water at a temperature of 120 degrees Fahrenheit, eight teaspoonfuls of boracic acid, or one teaspoonful of permanganate of potash, should be added to the water. If potassium permanganate of potash is used, it should be added to a pint of water, and frequently stirred until completely dissolved, then add the required amount of water. This treatment should be used daily. A hot enema should be taken three times a week. (See Chapter 20 for method of giving the vaginal douche.)

Chlorosis

Chlorosis is also called "green sickness." This disease occurs in girls just about the age when they should begin to menstruate. It is a diseased condition of the blood. There is usually no loss of weight; the girl may look plump and fat; but the colour of the skin is such that the name "green sickness" is applied to the disease. The appetite is usually fickle, and patients may continually desire to eat sour things.

Treatment

In this disease, there is a deficiency of iron in the blood. The girl should be given good foods. Individuals who have chlorosis are always constipated, so the treatment given in Chapter 29 should be used. The pills of prescription No. 20

(see Chapter 50) should be given. During the first week, give one pill three times a day; during the second week, two pills three times a day; in the third week, three pills three times a day. The dose of three pills three times a day should be continued for a month, or longer.

Diseases of the External Genitals

Itching, burning, and sores about the opening of the vagina, are often due to lack of cleanliness. The external genitals should be bathed often. Care should be taken to bathe the creases between the folds of the labia. Itching, redness and swelling about the mouth of the vagina may be caused by masturbation, gonorrhœa, leucorrhœa, abnormal urine, or by the use of coarse paper or dirty cloths for pads at the time of menstruation.

Treatment

The cause must be removed. If the pain and soreness is due to a discharge from the vagina, the treatment must be applied to stop the discharge. If the cause is masturbation, the masturbating must be stopped.

The cause may be due to lice; if so, use prescription No. 21 (see Chapter 50). If there is also itching about the anus, and at the lower end of the bowel, the trouble is due to thread-worms, and the treatment outlined in Chapter 35 should be used.

It will be found helpful to bath the itching area with prescription No. 22. After washing with this medicine, then rub on prescription No. 23 or No. 11. If there are pustules, they must be opened, and swabbed with tincture of iodine.

Diseases of the Uterus and Ovaries

Pain in the back, bearing-down pain low down in the abdomen, swelling of the abdomen, fever, foul-smelling discharge from the vagina and various other symptoms, may all be due to some disease of the uterus or ovaries. In any case when these symptoms continue for some time, and are not relieved by treatment mentioned above, the woman should by all means go to a hospital or to a competent physician for examination and treatment. Some of the diseases which cause these symptoms are very serious, and, if not looked after, quickly cause death.

Sterility

Inability to bear children may be present from the beginning of married life, or it may occur after the birth of one or more children. If sterility is present from the beginning of the married life, it may be due to lack of development of some of the organs of generation. Sterility may result from disease of the husband as well as from disease of the woman. The physician, by the use of the microscope, can ascertain if the trouble is with the husband, by examining his semen, to see whether or not it contains living spermat. In one hundred cases of sterility examined by a physician, it was found that sixteen were due to sterility on the man's part. In other cases of sterility on the woman's part, gonorrhœa or syphilis has been found to be the cause. These diseases are usually first contracted by the husband in illicit sexual intercourse.

Some cases of sterility in women are due to serious diseases of the ovaries or uterus. Sometimes these conditions may be remedied by surgical operations; that is, if the uterus has been torn by a previous childbirth, it may be repaired, or tumours of the uterus or ovaries may be removed.

Some cases of sterility are not due to serious disease, and these may be remedied by home treatment, as follows:

Failure to become impregnated may be due to too much sexual indulgence. Sexual intercourse should be at the most only once or twice a month, at the favourable period just before or after menstruation (See Chapter 23).

Sometimes conception is prevented by "discharges" from the uterus or vagina which destroy the spermat. This condition is often relieved by using daily the boric acid vaginal douche. One-half ounce of boric acid in four quarts of water should be used for the douche. The water should be as hot as is bearable. At the time of sexual intercourse, and for several days following, the vaginal douche should be discontinued. The woman should remain resting in bed for several hours after sexual intercourse.

If the woman's general health is not good, she should receive treatment to build her up; she should have good, nourishing food. She should not be compelled to work so hard that she continually feels fagged.

CHAPTER 43

Diseases of the Skin and Leprosy

Itch

Itch is caused by the burrowing of a small insect under the skin. The itch usually starts in the skin between the fingers, or in the skin of the wrists, or in the skin about the navel and breasts.

Symptoms

There is itching, and as a result of scratching, blisters, pimples, and red patches are formed. The disease spreads quickly from one member of a family to others in the same family.

To avoid itch, one should not sit or lie on the bed of one who has the disease. Itch may also be contracted by using the bedclothes or the body clothing or the towels of one who has the disease.

Treatment

The patient should first wash the body thoroughly, using hot water and soap. Then make an ointment by mixing well 3 parts of sulphur in seven parts of vaseline, or coconut oil. The sulphur and the oil must be well mixed. Mix on a piece of glass by rubbing the sulphur into the oil with a long, thin-bladed knife. Every night and morning, for three days, rub this into all the itching places on the body. During these three days do not change the clothing or bedding. After three days take a hot water and soap bath and put on clean clothing and use clean bedding. The soiled clothing and bed sheets must be boiled for several minutes before they are used again. This is necessary in order to destroy the itch insects that cause the disease.

Lice

People who are not careful to keep the body and clothing clean, often have lice on the body and on the head. Lice

can be prevented by any one who will wear clean clothing and take care to bathe often enough to keep the body clean.

Body lice cause itching, and as a result of the scratching, sores are formed on different parts of the body. The lice are to be found on the clothing, especially in the seams of the garments. To get rid of the lice, all that is necessary is to boil the clothing for several minutes.

There is a kind of louse that inhabits the hairy parts about the sexual organs, and sometimes spreads abroad from here to other parts of the body. To destroy these lice, the affected parts must be bathed once a week for several weeks with a solution of 2 grains of corrosive sublimate in an ounce (2 large spoonfuls) of water. Corrosive sublimate is a deadly poison, and great care must be taken in using it. Prescription 21 of Chapter 50 will also kill these lice.

Head Lice

When a person has head lice, the lice may be killed by mixing together equal parts of kerosene and cocoanut oil, and rubbing this into the hair every evening for two or three days. After rubbing this oil into the hair, a cap or cloth should be put on the head. The oil should be washed off each morning with hot water and soap. The patient must be careful not to go near the stove or lamp when this kerosene and cocoanut oil is on the hair. If there are sores on the head they may be smeared with a little vaseline or cocoanut oil.

The lice-eggs can be seen on the hairs. They look like little white beads along the hair. To get rid of these lice-eggs the hair should be washed with vinegar twice a week, and following the use of the vinegar the hair should be combed thoroughly with a fine-toothed comb.

Bedbugs

Bedbugs not only annoy one by biting, but they also spread some very serious diseases. The best way to rid them from the clothing or bedding is by immersing the clothing in boiling water. When the bedbugs are in the crevices of the bed, a mixture of one part of carbolic acid (or cresol or izal or sanitas or phenyle) in 10 parts of water should be smeared in all the crevices and holes of the bed. Oil of turpentine will also serve the same purpose.

Pimples—Blackheads

Pimples are often seen on the face, the shoulders and the back. Blackheads are very similar to pimples except that they have a black spot in the top of the pimple.

Treatment

Sweets, pastry, cake, coffee, tobacco and alcohol must be avoided. A cup of hot water should be taken the first thing in the morning upon rising from bed. Several glassfuls of water should be drunk during the day. If the juice of limes is added to the water the cure will be hastened. A daily bath followed by vigorous friction with a rough towel is a valuable part of the treatment. The bowels must move daily. If necessary, some cathartic, such as cascara tablets, may be used. Pimples and blackheads may be opened with a needle (which has first been held in the flame of a match to kill the germs on it). After washing the face with very hot water and drying it, an ointment may be rubbed into the skin three times daily. The ointment is made as follows: Mix together half a small spoonful of sulphur flour and 2 large spoonfuls each of starch and vaseline.

Prickly Heat

In the very hot weather, babies, and sometimes adults, are bothered with a red rash, or very small blisters, on the skin. It is caused by much sweating.

Treatment

Sponge the skin with cold water and then sprinkle on some talcum powder. If talcum powder is not available, use starch, or wheat flour. Three large spoonfuls of baking soda may be dissolved in half a glassful of water and to this about 15 or 20 drops of carbolic acid should be added. If this is sponged on the skin, it will stop the itching and burning.

Eczema

Eczema occurs in patches on the skin of the body. There is a redness, itching, and weeping (a fluid exudes from the itching places). Later a crust forms. Eczema some times causes the skin to become cracked. Eczema is com-

monest on the face, the scalp, and the folds of the skin about the joints.

Treatment

This skin disease is very difficult to treat. It is found that avoiding the use of meat, tobacco, and alcohol is necessary in order to effect a cure. Abundance of water should be drunk daily. Eat fruit daily. Drinking water containing the juice of limes is also helpful. The bowels should move daily. If the patient is constipated, the disease cannot be cured.

Do not use soap or water on the affected places. Clean cocoanut oil, or melted vaseline may be smeared on to remove the crusts. The affected parts should not be scratched. In the case of a small child cover the hands with several layers of cloth, so that he cannot scratch the skin.

In the beginning of eczema first sponge the itching places with a solution made of one large heaping spoonful of baking soda in a glassful of water; after this, sprinkle on some talcum powder or some starch, and apply a bandage.

If there is moisture and crusts, use an ointment made by mixing zinc oxide, two small spoonfuls; starch, the same amount; vaseline (or clean cocoanut oil), one large spoonful. Mix these three articles together and apply to the affected places.

If the eczema has been present for a long time and the affected places are dry and scaly, then mix together half of a large spoonful of liquid tar and two large spoonfuls of zinc ointment, and apply to the affected places. In some patients the sulphur ointment used for itch will be beneficial.

Ringworm

Ringworm is a skin disease that may develop on any part of the body. It is caused by a germ that is somewhat similar to the mould that is sometimes seen on a plate of cooked rice that has been allowed to stand over night.

The disease is caught from coming in contact with the body, or with the clothing, towels or bedding of some person who has ringworm. It is easily spread, and children who have ringworm on the body or on the head should not be sent to school until the disease is cured.

The ringworm begins as a small red or brownish spot and spreads out on all sides. After a time the centre of the spot may return to the normal colour of the skin. When this happens, the disease presents the appearance of a ring. The itching is intense.

Treatment

In mild cases use the following ointment in the evening; Mix 1 small spoonful (1 dram) of resorcin, 10 grains salycilic acid, and 2 large spoonfuls (8 drams) of vaseline or cocoanut oil. In the morning apply turpentine. Continue for two or three days to apply the ointment at night and the turpentine in the morning.

For severe cases apply iodine liniment once every other day for 2 or 3 times. Another medicine that is useful is made by mixing 20 grains of chrysarobin (goa powder) in 2 large spoonfuls (1 ounce) of ointment of zinc. This ointment causes smarting, and should not be used daily.

There are ringworm germs on the patient's clothing, and for this reason the clothing worn next to the skin should be boiled at least once a week.

Ringworm of the Scalp

Ringworm of the scalp is common among children. It causes the hair to turn white, or to drop out. Large crusting sores are also formed on the head. Sometimes all of the hair on the head falls out.

Treatment

Ringworm of the scalp cannot be cured without cutting the hair short. The best method is to shave the affected places.

After shaving off the hair, the same treatment may be used as was recommended above for severe cases of ringworm on the body. There is one form of ringworm of the scalp that is very difficult to cure and if the above methods do not cure, a physician should be consulted, otherwise the disease will progress and cause baldness.

Sores and Ulcers of the Skin

The majority of children always have some kind of sore on the skin of some part of the body. The commonest cause

of these sores is lack of cleanliness. If children were bathed daily, the germs that cause the sores would be removed from the skin.

To prevent children from having sores on the skin, it is necessary to keep their bodies and clothing clean, and to protect them from the bites of flies and mosquitoes.

If children are allowed to sit or lie on the ground or in the dusty street, they will be almost sure to have sores of some kind on the body.

If the child has a scratch or bruise on his skin, the injured place should be washed clean. After drying the scratch or bruise, sprinkle on a little boracic acid powder, or apply a little tincture of iodine. If the sore is oozing do not use tincture of iodine. The boracic acid powder or the iodine on the scratch or bruise will prevent the formation of a sore.

When the child has pimples on the body, use the treatment mentioned in this chapter for pimples. If the child scratches the pimples a sore will be produced.

If there are little pustules on the skin, they should be opened by means of a needle or of a small, sharp pointed piece of bamboo. Before being used, the end of the needle or of this pointed piece of bamboo should first be dipped in tincture of iodine, or into boiling water. After opening the pustule and squeezing out the pus, make a small swab, by winding a very small piece of cotton about the end of a splinter of bamboo. Dip this swab into tincture of iodine and then insert it into the pustule. Following this, put a small piece of cotton or clean cloth over the pustules, and put on a clean cloth bandage.

If there is a boil on the skin it should be opened with a small-bladed sharp knife. The knife should first be boiled for a few minutes. After opening the boil, treat it just the same as is directed in the preceding paragraph. If the patient repeatedly has boils he should be given one-quarter grain of calcium sulphid three times a day.

To treat a large sore, first wash it with a solution made by adding a teaspoonful of lysol to a glassful of water. Another solution that may be used is made by adding a few crystals of permanganate of potash to a couple of large spoonfuls of water. After washing the sore, sprinkle on it some boracic acid powder.

White precipitate ointment is a very useful medicine for the ordinary sores on the face and neck of a child.

For a large, open, raw sore, a good treatment is to apply to the sore two or three layers of clean cloth wet in a solution that is made by adding a large spoonful of salt to a cupful of water. Place a piece of oiled paper over this wet cloth, and then apply a bandage over the oiled paper. Re-wet the cloth with the salty water every hour. This treatment is very effective.

Leprosy

Leprosy is a germ disease somewhat similar to tuberculosis. The germs of the disease are found in the sores on the patient's body, and in the discharges from the nose.

It is known definitely that leprosy is not contracted through the eating of any particular food, such as fish. Neither is the disease contracted from any of the lower animals, but it is contracted from some person who already has the disease.

It may be that leprosy can be spread by some kinds of insects, such as the louse, bedbug, and fly.

When one member of a family has leprosy, others in the same family often contract the disease. Therefore it is known that close contact favours the spread of the disease. It is a disease that usually is found among people who live in dirty, crowded communities and who neglect to bathe their bodies and to wash their clothing frequently.

Symptoms

There are two types of leprosy, but both are due to the same germ. The first symptom of leprosy noticed may be attacks of fever, with headache, and pains in various parts of the body; or, there may be feelings of cold or numbness in different parts of the body. Another early symptom is sweating. The sweating may be over the whole body or it may be of but one part of the body, such as the hands, or feet, or head. Later there is an eruption on the face or limbs, and nodules begin to form in the skin, especially in the skin of the forehead, cheeks, nose, ears, and lips. The hair of the beard, moustache and eyebrows often drops out. Later, the

leprosy may cause the eyelids, nose, fingers, toes, and other parts of the body to rot and drop off.

In the other kind of leprosy the disease attacks mainly the nerves and causes loss of feeling. But before feeling is lost there are shooting or burning pains, especially along the sides of the forearm and on the front of the leg. Later, spots are seen on the skin. These spots may at first be red, but in a short time the centre of the spot becomes white and loses all feeling, the hair falls out, and wrinkles and scales appear. In course of time the muscles of the hands and feet become paralyzed. The fingers, toes, and portions of other parts of the body may rot away.

Treatment

Every case of leprosy must be reported to the Health Officers at once. Most governments conduct hospitals for lepers. In these hospitals the very best care and methods of treatment are used and no charge is made. There is hope of recovering from the disease if the patient goes to a hospital. It is important that leprosy be recognized when it first attacks the patient, for the earlier the treatment is begun the greater hopes there are of checking the disease. Therefore as soon as a person notices any of the symptoms or signs of leprosy on his body he should go at once to a good hospital.



CHAPTER 44

Diseases of the Eye and Ear

Cinders and Other Foreign Bodies in the Eye

When a cinder or a particle of dust gets into the eye, do not rub the eye with the finger, and do not try to wipe the particle out of the eye with a handkerchief. Have the patient lie down. Hold the eyelids open with the thumb and forefinger and drop some boric acid solution into the eye. This will wash out the cinder or piece of dirt.

If this does not remove the cinder, then the lid should be turned. Tell the patient to look down. The lashes and edge of the lid should be grasped by the forefinger and thumb of the right hand, first making sure that the hands have been washed clean.

Then press a small pencil or a small piece of bamboo against the upper part of the lid, at the same time lifting the lower part of the lid upward and outward so that the lid is turned inside out (see illustration on page 234). The lid may be kept in this position while the cinder, or other foreign particle, is removed with a clean cloth. After removing the foreign particle, a few drops of boric acid solution should be dropped into the eye to stop the pain.

If a small piece of lime gets into the eye, the eye should be washed with a solution made by adding a small spoonful of vinegar to half a glassful of water.

Inflammation of the Edge of the Eyelid—Treatment

First remove the dried crusts by bathing the lids with warm water. The loose hair should be pulled out. Then



First Method of Removing foreign Body from the Eye



Second Method of Removing Foreign
Body from the Eye

apply every night a little ointment made by mixing 4 grains of yellow oxide of mercury in 4 drams (1 large spoonful) of vaseline.

Stye

A stye is a boil on the eyelid. If styes occur frequently it is well for the patient to consult an oculist and have the eyes examined, for it may be that he needs to wear spectacles.

Treatment

Bathe the eyelid with very hot water. Pull out the hair that is in the stye, and then dip a wooden toothpick or a small sliver of wood in tincture of iodine and insert this end of the toothpick in the small opening made by pulling out the hair. After the pus comes out of the stye, apply some of the ointment prescribed in the preceding paragraph for inflammation of the edge of the eyelid.

Sore Eyes (Conjunctivitis)

Among the common causes of sore eyes may be mentioned the following: Getting dust and dirt in the eyes; rubbing the eyes with the fingers; wiping the eyes with a soiled cloth or handkerchief; washing the face in pond water; using wash-pans or towels that have been used by persons who have sore eyes; allowing flies to alight on a child's eyes.

Tobacco smoking, cigarette smoking, and drinking any kind of alcohol injures the eyes and causes a large amount of eye disease. If there is a large amount of very thick white or yellow pus in the eyes of an infant, the cause is the gonorrhœa germ. This is a most dangerous form of eye disease and one that causes a large amount of blindness. The patient should be taken to a physician for treatment. Unless a physician treats the eyes, blindness will almost surely result. This form of eye disease is common in new-born infants. The way to prevent it is to drop some argyrol solution into

the infant's eyes as soon as it is born (see Chapter 50, prescription No. 3).

All forms of severe sore eyes are very contagious, and can be spread from one person to another by means of towels, handkerchiefs, soap, wash-basins, etc. Therefore if one member of the family has sore eyes no one should use the towels, wash pans and soap that he uses. The one who treats the patient should always wash his hands thoroughly with hot water and soap each time after finishing the treatment. Flies are also common media for infection, and should be kept away from the child's eyes.

Treatment

For any case of sore eyes use boric acid solution, made by adding to a cupful of water two large spoonfuls of boracic acid. This medicine should be kept in a clean bottle. As the solution is used out of the bottle, keep adding more water until all the powder in the bottle is used. The medicine should be dropped into the eye every three or four hours with a medicine dropper, or a better method is to half-fill an eye-bath with the medicine, then hold this to the eye so that it fits closely against the lids. Throw the head back, and open the eyelids so the medicine can get in the eye. The eye-bath should be held up against the eye for several minutes. After using this boric acid solution, a drop of 10 per cent argyrol solution should be dropped in each eye.

If boracic acid or argyrol cannot be secured, then a solution made by adding half a small spoonful of salt to a cupful of water, may be used. After adding the salt, the water should be boiled and cooled before being used.

Cleanliness of everything used in the eye is an important part of the treatment of sore eyes.

Trachoma (Granular Lids)

This is a very serious form of eye disease. If the eyelids of a patient who has this disease are pulled down to show their inner surfaces, it will be seen that the lids are covered with numerous little granules (lumps). The treatment is the same as that given above for sore eyes, but in addition copper sulphate solution and some other medicines

must be used to effect a cure. This is a very contagious disease, and a physician should always be consulted.

Far Sight—Near Sight—Pain in the Eyes

Normally one should easily be able to read the print of this book when the book is held a foot from the eyes. If the book must be held nearer than this, this is evidence that you should secure glasses. Blurring of the print when reading, pain in the eyeballs, pain just above the eye, and headache, are all evidences that the vision of the eye is defective. To cure the difficulty, it will be necessary to go to an oculist who can test the eyes and sell you the proper kind of glasses. The men who travel about the country selling eye-glasses are unreliable.

Diseases of the Ear

Deafness

The opening into the ear is about an inch deep. At the inner end of the opening is a membrane called the ear-drum. (See illustration in Chapter 13.) Wax may accumulate in this opening and cause deafness. Deafness that comes on suddenly is often due to the accumulation of ear-wax in the ear.

To remove the wax, make a solution by adding a small spoonful of baking soda to three or four large spoonfuls of warm water. To remove wax from the left ear, have the patient lie on his right side. Pour some of the warm medicine into the ear. Allow the water to remain in the ear for several minutes in order to soften the wax. Then by using a small syringe some of the warm medicine may be squirted into the ear to remove the wax. If a syringe is not available then twist some cotton about the end of a very thin splinter of wood. Be sure that the cotton covers the end of the splinter. Insert this carefully into the opening and twist it a few times and then withdraw it, and by so doing remove the chunks of wax. Great care must be taken not to insert the splinter of wood down into the ear far enough to touch the ear-drum because the ear-drum is easily injured.

Deafness that has come on slowly and has persisted for a long time is usually due to disease in the nose, throat, and

middle ear. By looking at the illustration in Chapter 13, it will be seen that there is an opening between the throat and the ear. When one has a cold in the nose, or has sore throat, germs may pass up into the ear and cause deafness. Enlarged tonsils and adenoids are also common causes of deafness (see chapter 36 for treatment). To cure this kind of deafness it is necessary to apply the medicine in the nose and throat. The nose should be kept clean by washing it three times a day with a solution made by adding a small spoonful of baking soda and a small spoonful of salt to a glassful of water. This should always be warmed before using. The same medicine should be used as a gargle for the throat three times a day.

What to Do if an Insect or some Other Foreign Body Gets into the Ear

If an insect get into the ear, it should be killed by dropping some coconut oil or peanut oil into the ear, and then the dead insect can be removed by use of the syringe mentioned in the first part of this chapter. If the insect can be seen, it may be removed by the use of a small pair of tweezers.

To remove solid things such as beans, pebbles, etc., turn the ear downward, grasp the ear and pull it outward and backward and rub the skin just in front of the opening into the ear. This sometimes will cause the bean or pebble to fall out. If there is a bean or some kind of a seed in the ear a little wine should be dropped into the opening of the ear to prevent the seed from swelling. If the methods mentioned above are not successful, it is best to consult a physician; for the ear may be greatly injured in an effort to get something out of it.

Earache

Earache is usually caused by an inflammation of the middle ear that follows a cold in the nose and throat. Enlarged tonsils and adenoids cause a great deal of earache. Blowing the nose very forcibly may cause earache. Diving and surf-bathing may cause earache.

Treatment

Lie down and keep the aching ear on a rubber hot-water-bag or on a bottle filled with hot water. Every two hours a little water as hot as can be borne, may be dropped into the ear, then dry the ear, with cotton.

If the pain continues for twelve hours or more, a physician should be consulted.

Running of the Ear

When fluid begins to run from the ear after an earache, it shows that fluid has formed in the ear and has broken the ear-drum.

The ear should be wiped dry twice daily with clean cotton twisted about the end of a small splinter of wood. Then a swab of cotton should be wet with a hot boric acid solution (the same as is used for sore eyes), and this should be used to swab in the opening of the ear. After doing this use dry cotton to dry the ear and then sprinkle some dry boracic acid powder into the ear. The dry boracic acid powder may be gotten into the ear by making a small paper tube. Put a little boracic acid powder in one end, insert this into the mouth of the opening, and blow the powder into the opening of the ear. This treatment should be repeated daily. The mouth of the opening and the parts of the ear that become wet with the fluid from the ear should be kept smeared with vaseline or cocoanut oil to prevent sores being formed.

If when there is a running ear, pain is felt back of the ear, it indicates a very serious disease that may soon cause death unless a physician is consulted and treats the patient.



CHAPTER 45

Emergencies

Accidents and injuries are of daily occurrence. In every large family scarcely a day will pass by without some member of the family getting cut, or bruised, or getting something in the eye, or having toothache. Many times the injury is a severe one, such as a broken bone, or a deep cut that bleeds profusely. When such an accident occurs, all that most people can do is simply to stand and look on without being able to help the injured person. Every one should know what to do in an emergency, for by doing the right thing properly you may be able to save some one's life.

Bandaging

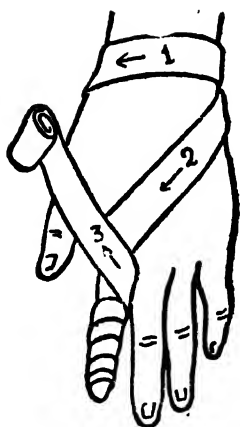
It is necessary to use bandages in connection with almost every injury, therefore every one should know how to put bandages on the different parts of the body. Bandages should be made of clean cloth. Bandages for the arms or legs should be about 2 inches wide. Bandages for the fingers should be a little less than an inch wide. It is well to prepare beforehand several of these bandages. Roll them up and keep them wrapped in clean paper or clean cloth. The illustrations on the next three pages show how to apply bandages properly.

Bruises

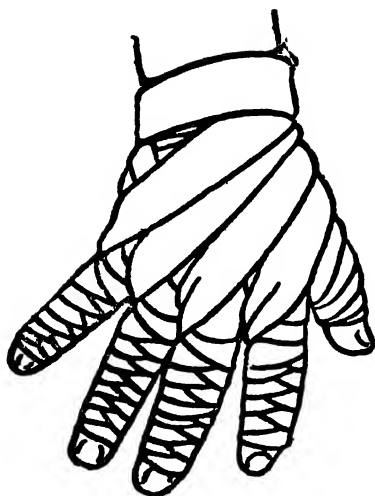
When a person falls and strikes some part of his body, or when he is struck by something, the skin is not usually broken, but the flesh under the skin is injured, and some of the small blood vessels are broken. This causes the ordinary black spot that is seen after a bruise.

Treatment

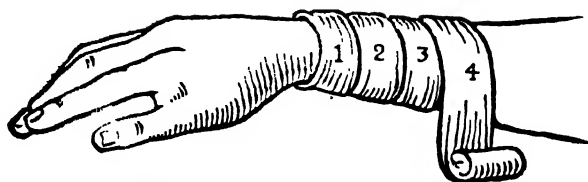
Apply at once ice or very cold water. In case ice or cold water cannot be secured, the next best thing is to wring cloths (such as handkerchiefs or small towels) out of very hot water and apply these hot cloths to the injured surface. The



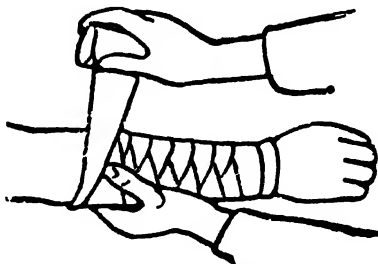
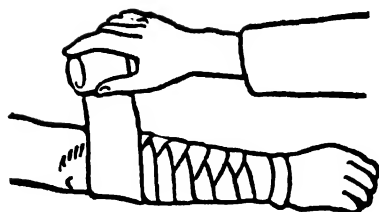
**Finger Bandage—Follow
Numbers**



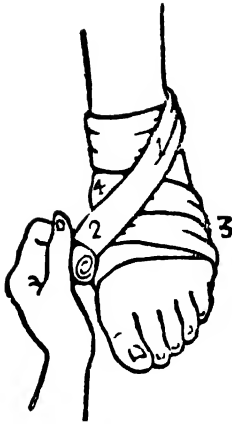
Bandage Each Finger Separately



Wrist Bandage—Follow Numbers



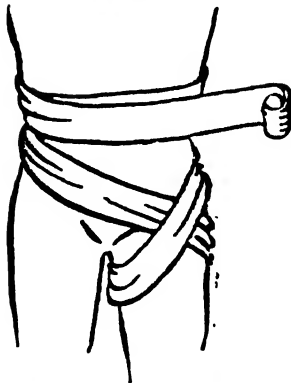
Arm Bandage—Begin at Wrist and Wind Upward as Illustrated



**Foot Bandage—
Follow Numbers**



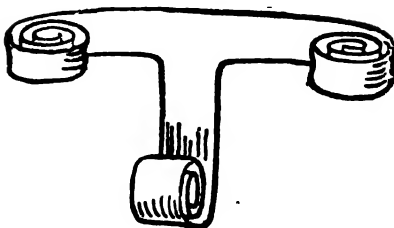
**Head Bandage—Cut Cloth as Indicated
—Follow Numbers in Tying**

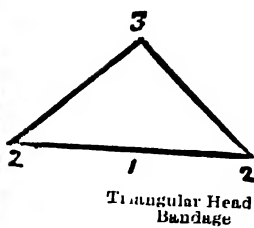


**Thigh Bandaging—Cut Bandage as
Indicated Below and Apply
as Shown Above**



Eye Bandage



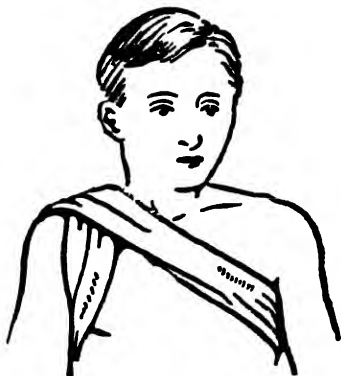


Triangular Head
Bandage



Triangular Head Bandage
Side View

Left: Triangular Bandage for Arm Sling



Lower Figures:
Bandage for Shoulders and Upper Arm

cloths must be frequently re-wet in the hot water, or a bottle filled with very hot water may be laid over the cloth.

Elevate the bruised part. This helps to relieve the pain.

If the skin of the bruised part is broken, swab it with tincture of iodine, or scatter on it some boracic acid powder and apply a clean cloth bandage.

Abrasions and Cuts

When the skin is scraped off, or when there is a small cut, one of the best methods of treatment is to apply with a swab a little tincture of iodine, then sprinkle on a little boracic acid powder and put on a bandage. The tincture of iodine will cause pain when it is first put on, but the pain lasts for only a few seconds. Even if the injured place is dirty, do not wash it before putting on the tincture of iodine.

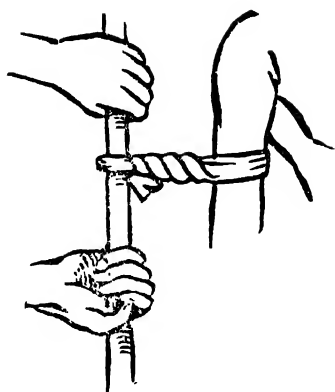
If the injury is small, it will be necessary to apply medicine only once. But if the injury is large and if on the second day the skin about the injured place is red and swollen, the bandage should be removed, and, if there is any pus, the parts should be washed with some hot boric acid solution. (a small spoonful of boracic acid in half a cupful of hot water.) After washing with this, wet a cloth with it and apply to the affected part and put on a bandage. If the cloth is kept continually wet by dropping on it every hour some of the boric acid solution, the cure will be hastened. If boracic acid is not available, the same amount of common salt may be added to the water. Other medicines may be used to wash the injured part. A few crystals of potassium permanganate, or 10 to 20 drops of lysol or carbolic acid may be added to half a cupful of hot water, and used with good results.

Severe Wounds that Bleed Profusely

If the bleeding from a wound is considerable and does not lessen soon, a clean cloth may be dipped in very hot water and pressed on the wound. The water must be very hot, or this method will be of no value.

If blood flows from a wound very fast, cause the patient to lie down, and press with both thumbs into the soft parts just above the wound. If the injury is on the arm or leg, a

folded cloth or handkerchief may be tied loosely about the limb above the wound and a stick used to twist the cloth tightly. A small round stone or a cork placed in the folds of the cloth just above the wound will be more effective in stopping the bleeding, than if the cloth alone is used. The cloth must be twisted tightly. (See illustration.) The bleeding arm or leg should be elevated and rested on some kind of support, in order that less blood will flow into it. As soon



Method of Applying Cloth to stop
Bleeding from Arm or Leg

as the bleeding stops the tight cloth should be removed, but it must be loosened slowly, just a little bit at a time because if suddenly loosened the wound may start to bleed again.

As soon as the cloth is twisted tightly and the flow of blood is lessened, tincture of iodine should be swabbed in the wound by means of a swab made by twisting some absorbent cotton about the end of a splinter of wood. When the bleeding ceases, place over the wound a few layers of cloth that have been boiled in water for a few minutes. After this put on a bandage.

How to Stop Bleeding from a Wound of the Scalp

Place over the wound a thin piece of cloth which has been wet with tincture of iodine, then apply over this more layers of clean cloth in order to make a pad. Press the pad down on the wound firmly.

Bleeding from the Face and Neck

Bleeding from a cut lip may be stopped by first washing the hands and then putting the forefinger in the mouth and squeezing the wounded place firmly between the finger and thumb.

In case of severe bleeding from the face, grasp the patient's neck, the same as you would the neck of a horse. By grasping the neck firmly

the lower jaw, the flow of blood to the face can be lessened. In addition to this, apply pressure, by means of a pad, over the wound, the same as already mentioned for stopping bleeding from the scalp.

Bleeding from the Shoulders and Armpit

Press firmly with the thumb just behind the middle of the collar bone. (See the illustration.)



Press with Thumb behind Middle of
Collar Bone

What to Do for a Wound that Gets Infected

When a wound becomes red, painful and swollen, and there is pus in it, the best method is to lay on it small pieces of cloth wet in a solution made by adding a small spoonful of boracic acid, to half a cupful of water. Re-wet the cloth with this solution so that it will be continually wet. All cloths placed on a wound should first be boiled in water. If a piece of oiled paper or oil-cloth, or a piece of clean banana leaf, is placed over the cloth wet with boric acid solution, it will prevent the cloth drying out quickly. If boric acid is not available, common salt may be used instead.

If a wound or any kind of sore on the hands or feet has pus in it, the following treatment is very efficacious. Provide two buckets of a size large enough to enable the hand or foot to be put into them. In one of the buckets put hot water. There should be a small spoonful of salt to every glassful of the water. The water must be very hot. Place cold water in the other bucket—the colder the water the better. Immerse the injured hand or foot first in the hot water for a minute or more, then immerse it in the cold water for a few seconds. Continue doing this for 20 minutes or longer. The hot water should be frequently re-heated in order that it may be kept very hot. The cold water should be frequently changed in order to keep it as cold as possible.

Sprains

A sprain is an injury caused by the sudden twisting of a joint. The joints most often sprained are the ankle and the wrist.

In case of a severe sprain it is best to consult a physician, for instead of a sprain there may be a broken bone.

The first treatment for a sprain is immersion for half an hour or more in water that is kept as hot as can be borne. After doing this, apply strips of adhesive plaster over the sprained part, or bandage the sprained part tightly with a cloth bandage. Start bandaging below the sprain (in the case of the hand start on the side of the wrist next to the fingers). On the second day the bandage may be removed and the injured part immersed in hot water for 15 or 20 minutes. While the hand or foot is in the hot water, the injured place may be gently rubbed (massaged). Rub from below upward and above downward.

Broken Bones

In every case of broken bones a physician should be called. The instructions given below are for those who cannot secure a physician at once. They are instructions as to what to do until the physician arrives.

When a bone is broken, cause the patient to lie down and remain quiet. When a bone is broken the ends are covered with sharp splinters of bone just like the two ends of a broken piece of wood. Any movement of the limb causes these sharp splinters to tear the flesh and so causes severe pain and injury.

Before attempting to move any one who has broken a bone, a splint of some kind should be applied to prevent movement of the broken ends of the bone.

If the broken bone is in the arm or leg, split some thin pieces of bamboo a couple of inches wide. If the bones of the



arm are broken, the pieces of bamboo should be about a foot in length. If the bones of

Method of Applying Splint
for Broken L.

To put on a splint, first gently pull the broken arm or leg out straight and by gently grasping the limb at the location of the break try to get the broken ends to come together so that the bone will be straight. All this must be done very gently so as not to cause too great pain. Having done this, the next thing to do is to surround the broken limb with a thick layer of cotton, or if this cannot be secured, use a few articles of clothing as a pad about the limb before the pieces of bamboo are bound about it. When the padding is applied, then place the pieces of bamboo about the limb and bind them on firmly (See the illustration). This having been done, the patient may be taken home or taken to a dispensary or hospital.

It requires three weeks or longer for a broken bone to get well and therefore it is necessary to keep the splint on for that length of time. (See Note.)

Dislocations

When the end of a bone gets out of place, the joint cannot be moved. This will usually enable one to distinguish between a dislocation and a broken bone.

In treating a dislocation, the aim is to get the end of the bone back into its proper place. In almost every instance it requires the assistance of a physician to accomplish this; therefore in case of a dislocation take the patient to a physician or call a physician. The sooner after the injury the physician is secured, the easier it will be to get the bones into their proper places. By delaying a day or two it may be that the physician will have to perform a surgical operation in order to affect a cure.

Burns

If the burn is very slight, the immersion of the injured part in cold water is a good treatment. After immersing in cold water 20 minutes or longer, then smear the burned part with carbolated-vaseline (2 or 3 drops of carbolic acid

NOTE: A COMPOUND FRACTURE, that is, a fracture where the broken bone or bones pierce the skin, calls for special attention, since infection is almost certain because of the dirt and germs drawn into the deeper tissues. Whenever possible the services of a competent physician should be secured. The fracture must be treated as an open wound, and a drainage tube inserted to drain away the germs and the poison until the body can make the necessary repairs. The fracture must be very carefully treated.

to a small spoonful of vaseline) or with a mixture of equal parts of white of egg and boiled cocoanut oil.

If the burn is very severe, the clothing should be cut and removed. Then give treatment by laying on the burned part cloths that are kept constantly wet with boric acid or salt solution. The method of making these solutions is explained in this chapter under the paragraph entitled "Abrasions and Cuts." Keep these wet cloths on the burned part several hours each day, and when the cloths are removed sprinkle finely powdered boracic acid over the burned part. An ointment made by mixing one spoonful of boracic acid with two spoonfuls of vaseline may be smeared on a cloth and laid over the injured place.

Scalds

When the skin is scalded by hot water or by boiling water, blisters are formed. These blisters should not be opened unless they are very large (as large as a rupee). One of the very best medicines to use is to put a small spoonful of picric acid in a small bottle (holding 4 or 5 large spoonfuls of water). Swab this medicine on the burned part two or three times a day and sprinkle in the burned place a little boracic acid. Bandage with a clean cloth.

What to Do When a Nail or a Splinter is Run into the Foot or Hand

After pulling out the nail or splinter make a small swab by twisting a little cotton on a splinter of wood. Dip this swab in tincture of iodine and thrust it down to the bottom of the hole that was made by the nail or splinter.

What to do When Bitten by a Dog or Other Animal

If the bite is anywhere in the arm or leg, tie a strong cord about the limb just above the bite (on the side of the bite nearest to the body). Put a stick under the cord and twist it tightly. (See illustration, page 244.) This is to prevent the poison from the wound passing up into the body. After putting on the cord, do the same treatment as described in the preceding paragraph to the wound with a nail. After using the iodine, wash the wound with water, not all at once. Arrangement of the cord should be made as promptly as possible to a 1

having being bitten by a rabid animal, it is very essential that no time be lost.

For measures to be adopted by persons bitten by rabid or suspected animals see Appendix. There are four Pasteur Institutes in India. The Pasteur treatment is now available at the most important centres in connection with the Government hospitals. Consult your physician or the local magistrate at once and he will direct you to the proper place for treatment. In some circumstances it is desirable to cut off the animal's head and send it with the patient for expert examination.

Snake Bites

The same treatment should be used for snake bite as for dog bite. It is well to make the wound bleed. After the cord has been tied tightly, thrust a knife point into the small holes made by the fangs of the snake. Press about the holes to make the blood come out. After the wound has bled for a few minutes, tincture of iodine should be swabbed in the holes; or dissolve a few crystals of permanganate of potash in a little water in a spoon and use this instead of the tincture of iodine. If the snake is known to be very poisonous, inject permanganate of potash into the flesh at the places the fangs of the snake entered the flesh. The permanganate solution for this purpose is made by adding five grains to two large spoonfuls of water.

Scorpion and Centipede Stings

When stung by a scorpion or centipede, use a needle and prick the skin deeply at the point of the sting. Prick a dozen or more holes in the skin. Then wet the skin with water and sprinkle on the spot some crystals of permanganate of potash. Leave this for several minutes.

Sunstroke

When persons working out in the sun suddenly become unconscious and fall to the ground, they should be quickly taken to a shaded place and cold water should be poured on the head and chest. While the cold water is being poured over the patient, let some one rub the skin of the chest and arms briskly. Sunstroke is a very serious injury, and a physician should be called to examine the patient.

Poisoning

In most cases when poison has been swallowed, except in cases of corrosive poisons like carbolic acid, the first thing to do is to cause the patient to vomit. This may be done in several ways. One way is to stick a feather or a finger back into his throat and tickle the throat. Drinking a glassful of tepid (lukewarm) water in which has been stirred 2 large spoonfuls of mustard flour or 4 large spoonfuls of salt, will usually cause vomiting if the first method fails.

Carbolic Acid Poisoning

To save the life of one who has taken carbolic acid do not try to make the patient vomit but have him quickly swallow four or five raw eggs. After this give the patient a large spoonful of magnesium sulphate (Epsom salts) or sodium sulphate in a glassful of water.

Poisoning by Arsenic or Rat Poison

Use the method already mentioned to cause vomiting. Then give the patient four or five raw eggs, and a big dose of magnesium sulphate or sodium sulphate.

Toothache

When there is a cavity in a tooth that is aching, the food should first be cleaned out of it. Wet a little absorbent cotton in some creosote or oil of cloves, and fill the hole with it. Press the cotton into the hole with a toothpick. Be

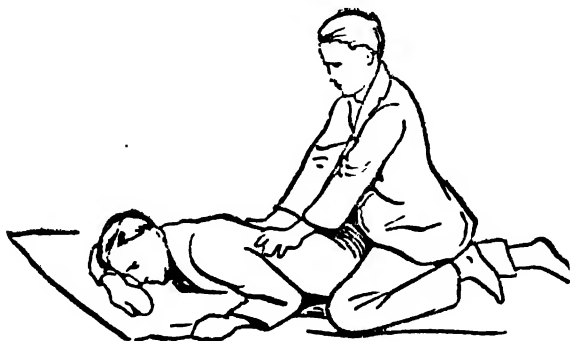


“Hold up the Middle

careful not to swallow any of the creosote. A drop or two of carbolic acid placed on a little cotton and inserted in a tooth cavity will also stop an ache. Sometimes filling the hole of the tooth with baking soda will stop the aching.

Restoring to Life Those Who Are Apparently Drowned.

As soon as the body is drawn out of the water, quickly wipe water and mud out of the nose and mouth. Rip open the clothing about the chest; open the mouth, and keep it open by putting a piece of wood between the teeth. Turn the patient on his face; put your arms under his arms; hold up the middle of the body so that the water will run out of his lungs. As soon as the water stops running from the nose and mouth, let the body down. A roll of clothing should be kept under the abdomen. Then place your two hands on the back as shown in the illustration and press down firmly; then suddenly release the pressure. Do this about 12 times a minute (do it just about as fast as you yourself are breathing). Pressing on the back forces air out of the lungs, and when the pressure is released, air enters the lungs. In case there are any signs of life in the patient, the artificial respiration should be continued for an hour or more. If any one else is near to assist, have him rub the skin of the body briskly to dry it. Also secure bottles filled with hot water, and place them beside the patient's body. The water must not be very hot or it will burn the patient's skin; for the skin of a man who is almost dead is very easily burned.



"Place Your Two Hands on the Back." (See text above)

CHAPTER 46

Miscellaneous Affections

Sore Mouth

The treatment of the common sore mouth of infants has been described in Chapter 27.

The sore mouth that troubles adults is often due to failure to keep the teeth, tongue and mouth clean. Ulcers form on the inner side of the lips, and inside the cheeks. These ulcers show as white spots. They are very painful.

Treatment

Keep the mouth clean by the use of prescriptions Nos. 9 and 10 (see Chapter 50). Dip the end of a toothpick in pure ly-ol or pure carbolic acid and touch the sore spot; then spit out the saliva in the mouth, to avoid swallowing any of the poison.

Hiccough

Holding the breath will often stop hiccough. Another treatment is to grasp the tongue and pull it out of the mouth, holding it for a minute or two. Another treatment is to drink a glassful of very hot water.

Nose Bleed

Sometimes by simply squeezing the nose between the thumb and finger the bleeding can be stopped.

Another treatment is to hold a lump of ice against the nostril and hold another piece of ice in the mouth. A piece of ice held against the back of the neck will often instantly stop bleeding from the nose.

Dropping into the nose very salty water will sometimes check bleeding.

If all of these methods fail, then make small bunches of absorbent cotton about the size of the last joint of the little finger. Tie a strong thread about each of these. The thread should be 6 or 8 inches of cotton up into the nose for ab

them into the nose to plug up the opening of the nose. Leave these pieces of cotton in the nose for 30 minutes or longer. They can be pulled out by grasping the end of the thread that has been allowed to hang out of the nose.

Hernia (Rupture)

Rupture is caused by a piece of the intestine passing through an opening in the wall of the abdomen. It causes a swelling under the skin. The most common locality is in the groin close to the pubes.

To cure a hernia requires the services of a physician. If by pressing on the swelling the bowel cannot be made to return into the abdomen, the patient should remain lying down, and a physician should be quickly called.

In some cases of hernia an appliance called a truss may be used. This is a band that goes around the body, and which has a hard round pad that is held firmly over the spot where the bowel comes out of the abdomen. The truss must be adjusted to the size of the patient. The most satisfactory treatment is surgical. Once efficiently repaired by a surgeon, hernia gives no further trouble.

Stone in the Bladder

Frequent and painful urination, blood in the urine, and occasionally passing very small stones in the urine, are all signs of stone in the bladder.

Treatment

Rest in bed, and drink large quantities of water containing lime juice or lemon juice. Fifteen grains of potassium citrate in a cupful of water may be taken three times daily. Hot baths are helpful. Ten grains of urotropin may be taken three times a day. If the pain is severe, it will be necessary to go to a hospital and have the stones removed by a surgeon.

Jaundice

Yellowing of the whites of the eyes and the skin is due to disease in the gall-bladder or liver.

If there is any fever, the patient should go to bed. The diet should consist of egg-nog and rice-gruel. Drink water

containing lime juice. Take a dose of Epsom salts daily. Apply fomentations over the liver for 20 minutes twice a day.

Pain in the Joints and Pain in the Back, Rheumatism

In the treatment of any of these pains, heat is the most efficacious treatment. The hot water bottle can be used, or the fomentation. Oil of wintergreen is helpful when rubbed into the skin over the joint. A cloth may be saturated with the oil, and laid over the painful place. Cover this cloth with a piece of oiled paper, and then apply a bandage. Avoid the use of alcohol and meat. Drink large amounts of water daily.

In the case of painful joints due to rheumatism, 15 grains of sodium salicylate and 30 grains of soda bicarbonate (baking soda) may be taken in half a glassful of water every three hours.

Epilepsy (Fits)

Epileptic fits may be so severe that the patient falls down and froths at the mouth. In some cases the fits are very mild. The patient will, in the midst of talking or eating, suddenly lose consciousness for a half minute or more. These mild fits are very similar to fainting. (See Note, page 260.)

The treatment consists in making sure that there is a bowel movement daily. Do not use wine, tobacco, or meat. Sodium bromide, 60 grains a day, may be given to an adult until a physician is secured. Drink freely of water containing lime juice and sweetened with a small amount of sugar.

Swallowing Foreign Bodies

Parents are often greatly alarmed by children swallowing pieces of money, pins, buttons, etc. These things usually pass through the body without doing much harm. Do not give a cathartic, but give bulky food, such as bread, porridge, sweet potato, or some other coarse vegetables for the purpose of making a large mass in the intestines that will carry the foreign body along out of the bowel.

Tumours

The soft tumours that sometimes grow on the head, neck, and back, are harmless. Any tumour that grows in the lip, jaw, or breast, is dangerous. A physician should be consulted at once. The tumour may be a cancer. The successful treatment is its removal.

CHAPTER 47

How to Care for the Sick—Disinfecting

In chapters 19, 20, and other chapters in this book it has been stated that the most important thing in the healing of disease is not medicines but rest, good food, good care and the use of every possible means to aid the blood in destroying the disease germs and the poisons produced by these germs.

Rest

In every case of severe illness the patient should go to bed and remain there night and day. Many sick people do not get well because they lie down only until they begin to feel better; then they get up and begin to go about and do their ordinary work and eat the ordinary food.

When a person is sick, he will recover more quickly if his neighbours and relatives will not call to visit him too often. In well-managed hospitals very few people are allowed to visit the patients. Visitors often do harm rather than good. They talk to the patient and weary him. They sometimes bring food and medicines to the patient, and the foods and medicines are not of the kind that the patient should use. Another way in which those who visit sick people may do harm is by spreading the disease. Most diseases are communicable (can be carried from one person to another), and visitors by shaking hands with a sick person, or by sitting on his bed, or by handling articles in the patient's room, get the disease germs on their hands and clothing, and as a result may carry these germs to their homes, thus causing others to contract the disease. It is best that only the two or three who are caring for the patient should enter his room and that others should not be allowed to enter the room, unless they also have been requested to help care for the patient.

One who is sick needs pure, fresh air and often visitors who are allowed in the room smoke cigarettes and cigars and pollute the air that the sick person breathes.

Every sick person needs much sleep. No one should be allowed to sit about in the patient's room and keep a light burning. The light should be put out early, so that the patient can go to sleep.

Diet

Proper diet is one of the most important things in the treatment of the sick.

In some kinds of sickness, the sick person can use the ordinary foods; but in most diseases, and especially in diseases of the stomach or intestines, special food must be prepared. (No matter what the disease is, the sick person should be given an abundance of water to drink. The water should first be boiled and cooled. Fresh, ripe fruits, and the juices squeezed from the fruits, are excellent for the sick.)

Eggs, soft boiled, or poached, or jellied, are good; they should never be fried or hard-boiled. Eggs can be poached by breaking the egg into a small amount of boiling water. Take the egg out of the boiling water as soon as the clear part of the egg has all turned white. Eggs are jellied by heating to boiling about two pints of water in a small cooking vessel. (As soon as the water boils, set the vessel off the stove, and place in it a couple of eggs. Allow the eggs to remain in the water for ten to fifteen minutes. If properly done, the inside of the egg should be of the consistency of thin jelly. Eggs prepared in this way are very easily digested.) Egg-nog is very easily digested. It is made by beating the white of an egg to a stiff froth, then beating in the yolk, adding to this a little sugar, and a spoonful or two of pineapple juice. Then stir the egg into half a glassful of milk or fruit juice.

In case of diarrhœa or dysentery, or, in case of any acute, severe disease of the stomach or intestines, egg water is sometimes the only food that can be given to the patient. It is made by stirring the whites of two eggs into a glassful of water which has been boiled and cooled. It may be flavoured with a little lime juice or lemon juice.

Congee (rice-gruel), or a gruel made from browned wheat flour, makes a good food for the sick, whether for a child or an adult. Fresh milk that has been boiled, baked potatoes, stewed fruits, arrowroot gruel, bread cut in thin slices and thoroughly toasted, are all good for the sick.

The foods to be especially avoided by the sick are the common vegetables, such as onions and garlic; also bean curd, cake, confectionery or sweets of any kind. Curry, pepper, ginger, and very salty foods, also, should be avoided by the sick.

In preparing foods for the sick, the aim should be to prepare clean foods that can be made appetizing, and that are easily digested.

The Patient's Room

The patient, if seriously sick, should have a room by himself. This room should be well lighted. It should have two or more windows. In some diseases, such as cholera, diphtheria, and scarlet fever, the patient should be kept in a house that is not inhabited by other people, because these diseases are so very communicable that they would be contracted by those who lived in the house with the patient.

Bathing

{ Many people think that when a person is sick he should not be bathed. This is a serious mistake, for there is greater need of frequent bathing for the sick than there is of frequent bathing for those who are not sick. By bathing one part of the body at a time and drying that part as soon as it is bathed, there is no danger of the patient's catching cold. In most kinds of sickness, bathing is as valuable as any medicine. }

How to Take Temperature

One cannot always tell by feeling the skin whether a person has fever or not. To ascertain for certain whether a person has fever or not, it is necessary to use the fever thermometer. The thermometer has marks and figures running 90 degrees to 110 degrees Fahrenheit. An arrow marks 98 1/2 degrees; this is the temperature of a person who is not sick. If the mercury in the thermometer goes to 100 degrees or above, the patient has fever. 103 degrees is a moderate fever. 104 degrees or 105 degrees is a high fever.

To use the thermometer, firmly grasp the upper end of it, with the end containing the mercury downward, and jerk it quickly several times as though you were snapping a whip. This must be done in order to shake the mercury down into the lower end of the thermometer. Then place the end of

the thermometer containing the mercury under the patient's tongue. Tell the patient not to close the teeth but to close the lips tightly and to breathe through the nose. The thermometer must be left under the tongue for 3 or 4 minutes.

The armpit may first be wiped dry and the thermometer placed there. The arm should be held down close against the chest.

In the case of children, in order to avoid breaking the thermometer it may be inserted into the bowel for a couple of inches or laid in the groin.

Before and after using the thermometer it should be washed with soap and water (do not use hot water). After being washed with soap and water it should be washed with alcohol or with a solution of lysol or carbolic acid, made by adding a small spoonful of either of these to a glassful of water.

The Pulse

The rate of the pulse at different ages is as follows :—

| | |
|-----------------|--------------------|
| At birth | 130 - 150 a minute |
| At 1 to 2 years | 110 - 120 „ „ |
| At 2 to 4 „ | 90 - 110 „ „ |
| At 6 to 10 „ | 90 - 100 „ „ |
| At 10 to 14 „ | 80 - 90 „ „ |
| Adult | 72 „ „ |

To count the pulse, place the tips of three fingers on the front of the wrist half an inch from the outer edge of the wrist and an inch above the base of the thumb.

The Breathing

The rate of breathing at different ages is as follows :—

| | |
|------------|--------------------|
| At birth | 40 a minute |
| At 2 years | 28 „ „ |
| At 4 „ | 25 „ „ |
| At 10 „ | 20 „ „ |
| Adults | 16 to 18 a minute. |

To count the breathing, take your watch in one hand, lay the other hand on the patient's chest, and count each time the chest expands.

Disinfecting

In the chapters on Cholera and Typhoid Fever mention has been made of the proper method of disinfecting the bowel discharges.

Burning or boiling is the most effective way of disinfecting. Pieces of paper or cloths that have been soiled by the sick should be burned.

Almost all articles of clothing or bedding can be boiled without injury. This should always be done before the garments or articles of bedding are used by others.

Bowel discharges and urine can be placed in oil tins, and covered and boiled before being thrown out; or the discharge may be mixed with shavings or straw and burned.

Sunlight will kill germs if the germs are in the sunlight long enough. For this reason the patient's room should be well lighted, and the clothing and bedding of the sick should frequently be hung out in the bright sunlight and sunned for several hours.

Formaldehyd (Formalin) is an excellent disinfectant for a house that can be closed tightly. To disinfect clothing or other articles that cannot be washed or boiled, put the articles in a box that can be tightly closed. Put in a layer of clothing and sprinkle on a small spoonful of formalin, then put in some more clothing and add another small spoonful of formalin. Then close the box tightly and keep it closed for 24 hours.

Bichloride of mercury is one of the most widely used disinfectants. It is very poisonous and for this reason it can not be sold promiscuously. It is usually put up in tablets (pills). Two of these tablets in a quart of water (two glassfuls) make a solution in which there is one part of bichloride of mercury to a thousand parts of water. This can be used for washing the hands after handling the sick. When towels or handkerchiefs, etc., are soiled by the sick, they may be soaked in this for half an hour and then washed.

Carbolic acid in a solution containing 2 or 5 parts of carbolic acid to 100 parts of water is also a commonly used disinfectant.

Lysol is an excellent disinfectant when used in a solution containing one part in a hundred parts of water (1 small teaspoonful of lysol to a glassful of water).

Lime is a useful disinfectant. It may be scattered on the ground under and about the house. It may be used to cover bowel discharges which have been thrown into a pit.

Sulphate of copper may be used as a disinfectant. It should be used in the proportion of about one spoonful to 4 glassfuls of water.

To disinfect a house where a sick person has lain, the best method is to scrub the floors and walls and furniture with soap and water, and if carbolic acid or bichloride of mercury can be secured, make a solution as just described, and wash floors, etc., with one of these solutions.

NOTE: EPILEPSY—It has been said that heredity is believed to play an important role as a cause of epilepsy. Alcohol, auto-intoxication, head injuries, eyestrain, intestinal parasites, adenoids, *et cetera*, in an individual of faulty nervous organization may bring on the attacks.

During an attack of epilepsy the patient should be protected from injury, the clothing loosened, and a piece of wood or cork placed between the teeth to prevent laceration of the tongue. Careful search should be made for the cause of the attacks.

The diet is of great importance. Meals should be taken at regular intervals, and should be small in quantity. Meat, tea and coffee and rich pastries should not be allowed. Salt in the diet should be reduced to a minimum. The diet should consist mainly of fruit, entire cereals, well baked toast, milk and vegetables. Eggs, legumes, nuts and cheese should be taken sparingly.

The bowels must be kept free by diet, simple laxatives or enemas as required. All sources of reflex irritation, such as eyestrain, nasal polypi, enlarged tonsils, adherent prepuce, and intestinal worms must be removed.

Keep the skin active by frequent warm baths. The patient should lead a quiet out-of-door life with plenty of physical exercise. ED.



CHAPTER 48

Flies Kill People

The fly is such a small creature; how can it possibly kill a man? This question may be answered by the following illustration. One day a very small child was playing in his father's medicine shop, and by chance found a package filled with white powder. He carried this out into the street, and dropped it into a well. Now the white powder was a powerful poison, and caused the death of a large number of people who lived in the neighbourhood and used water from that well. The little child killed those people by carrying poison and putting it in this water. Using this method, it is evident that a very small child could kill a large number of people, and yet not be suspected of the deed. It is by carrying poisons that the fly kills people. And although flies kills tens of thousands of people in India every year yet very few suspect the fly of being a murderer. By most people the fly is considered a very harmless insect—one that never causes any trouble more serious than that of tickling the skin where it alights on the body.

In order to understand the deadly work of the fly, it is necessary to study its life-history and habits.

The female fly lays eggs, and these eggs change into larvæ (maggots). The larvæ later become flies. It requires from ten to fourteen days from the time the fly lays its eggs until the new generation of flies is produced. One female fly will lay at least 120 eggs, and in the course of two weeks each of these 120 eggs will develop into a fly. From this it will be seen that in a few months' time many millions of flies may come from a single fly.

The chief breeding place of the common fly is in horse manure. Flies also breed in human excrement, and in rotting material and garbage of almost any kind. It may be said that flies breed wherever filth is allowed to accumulate.

The fly is hatched in filth, eats filth, and prefers to live in filthy places. The body and legs of the fly are wel

adapted to the work of carrying filth, for its body and its six legs are all covered with numerous hairs. On each of the six feet of the fly is a rounded pad. These pads are covered with a sticky, glue-like material. Were it not for this sticky matter on the feet, the fly could not walk upside down on the ceiling as it does. Having the body and legs covered with hairs and having this sticky material on the feet, it is evident that wherever the fly alights it will carry away on its feet, legs, and body anything that will stick to them. If the fly alights on human excrement, it will carry away some of this faecal matter on its body, legs, and feet; and when it alights on any fruit, vegetables or other article of food, some of this faecal matter will be deposited on the thing upon which it alights. If this faecal matter has come from some one sick with diar-

rhoea, dysentery, or cholera, then the germs of these diseases are in the faecal matter deposited on the food, and the result is that whoever eats this food is very liable to contract either diarrhoea, dysentery or cholera.



Any person who carefully watches a fly when it is eating may observe that in order for the fly to eat anything solid, it first ejects some fluid from its stomach to melt the food it desires to eat. The stomach of a fly contains all manner of filth, and this filth is ejected with the fluid from the stomach. In this manner it is possible for the fly to spread many kinds of disease.

Flies alight on sore eyes, or on a pus-oozing sore on a sick man's body. After eating some of the pus and getting more of the pus smeared on its body, legs and feet, it flies away and alights on the eyes or skin of a child or an adult. This is one of the common ways of spreading sore eyes and various kinds of skin diseases.

It has been proven that flies spread many kinds of disease, such as typhoid fever, cholera, diarrhoea, dysentery, diphtheria, measles, scarlet fever, small-pox, sore eyes, plague, boils, pustules, ulcers, and intestinal worms.

How to Avoid Being Injured by Flies

The very best way to avoid the injury done by flies is to prevent the flies from breeding. It is much easier to prevent the flies from breeding than it is to destroy them after they breed. It has been stated that the chief breeding places of flies are in horse manure and garbage. Horse manure should be kept in covered boxes, so that flies cannot alight upon it. The manure should be carried out and scattered on the fields at least twice a week. If there is but a small amount of manure, it may be sprayed twice a week with kerosene or chloride of lime. This prevents the flies from breeding.

Garbage should be kept in tightly closed garbage cans. No garbage or rotting material of any kind should be allowed to collect on the streets or in any alley or yard.

In any properly governed city or village, laws should be made compelling the inhabitants to take the precautions mentioned in the preceding two paragraphs. If this were done, sickness and death would be largely reduced.

Every family can keep flies out of the house, and thus avoid much sickness, by putting screens on all the windows and doors of the house. If it is not possible to put screens on all the windows and doors of the house then the kitchen and dining-room windows and doors should be screened.

CHAPTER 49

Know Thy Creator

God is the Creator and the supreme Ruler of the universe. He is a spiritual being, but since some men look upon dead men and demons as spirits, God is called the true Spirit. He rules heaven and earth, and all things therein, and so He is called Lord and King. Since He is far above all earthly kings and rulers, He is called Lord of lords and King of kings. He created and sustains all living beings, and so He is called Father; but since all men have earthly parents He is distinguished by calling Him, Heavenly Father.

There is but one true God. Evidence of this is found in the fact that no country can have two supreme rulers. If two kings cannot sit together upon the throne of an earthly kingdom, it is certain that there can be but one supreme Ruler on the throne of the universe.

God has always existed. He is the self-existent One, without beginning and without end.

If one should ask where God lives, the reply is that His throne is in heaven, but that through His Spirit He is omnipresent. Although His throne is in heaven, yet men should not worship heaven, because heaven is simply the place of His throne.

God has great power. Man must first be supplied with tools and materials before he can make a chair, a bed or a house; but God, when He created the world, needed not to be first supplied with material. He simply spoke the word, and commanded that the heavens and earth should be; and the heavens and earth forthwith came into existence. Strong men can, with great difficulty lift a weight of one hundred and fifty pounds; but God by His mighty power supports and keeps in constant motion this earth on which we live, and all the host of the heavenly bodies. He has done this night and day throughout all the thousands of years from the time of creation until this present day.

The wisdom of God is shown in everything that He created. The moon and stars all moving in their appointed spheres, the manifold varieties of plants, with their variegated leaves, beautiful flowers and luscious fruits, and their adaptability to man's use for food and clothing, all show forth that the God who created them is all-wise. In Chapter 3, 6, 7, and in other places in this book attention has been called to the wonderful way in which the various organs of the body work. In these facts we have further evidences of the wisdom of the God who created us. God created the eye and the ear; and it would be strange indeed if He Himself could not see and hear. He verily sees our every act, and hears our every word. He even knows all the thoughts of our minds.

God not only gave life to all living things, but He sustains that life by supplying to them air, and food and drink. In this we see the evidences of God's care for all His creatures.

It is in the study of God's purpose in creating man, and the provisions made for man's happiness, that we discern most clearly the attributes of God. Before creating man, God first created this earth, and as recorded in this first chapter of the Christian Bible, He created the plants and animals, and everything that could be of use to man and would add to his happiness. His purpose in creating man is stated by Himself: "I created man for My glory." It was God's purpose that man should love and serve the Heavenly Father, and in work and act show forth His excellencies and virtues.

In the beginning God created two persons, a male and a female. He gave them perfect bodies, deep intellects, and dispositions that were wholly good. Their home was in a perfect place, called the Garden of Eden. At that time there was no evil, and no pain and sickness in the world. It was God's purpose that they should live happy, peaceful lives. Not lives that would be cut short in 30, 50, or 80 years by sickness and death, but that would extend through myriads and myriads of years—in other words, would be eternal.

God took precautions to prevent man from forgetting his Maker, by establishing the seventh day as a memorial of creation; and as a sign that God was man's creator, God commands all men to keep the seventh day (commonly called

Saturday) as a holy Sabbath day. Those to-day who worship the true God should obey that precept of God's law which says, "Remember the Sabbath day, to keep it holy. Six days shalt thou labour, and do all thy work; but the seventh day is the Sabbath of the Lord thy God; in it thou shalt not do any work, thou, nor thy son, nor thy daughter, thy manservant, nor thy maidservant, nor thy cattle, nor thy stranger that is within thy gates; for in six days the Lord made heaven and earth, the sea, and all that in them is and rested the seventh day; wherefore the Lord blessed the Sabbath day, and hallowed it." This law has never been changed or abrogated, and stands to-day pointing men to one of the great obligations which every man owes to his Creator.

The Creator established laws that govern everything in the universe. For example, the movements of the earth are so governed that the days are all twenty-four hours long, and the seasons follow each other in regular order; the heavenly bodies move in definite courses and appear and disappear at definite, fixed times. All the organs of our bodies are controlled by laws. God established a moral law that comprehends every duty man owes to his Creator and to his fellow-men. The distressing conditions seen in the world to-day have come as a result of man's disobeying this moral law, and being led astray by the Evil One to the extent that he turned aside from loving and serving the true God and began worshipping idols of wood and stone, and bowing down before trees and mountains, birds and beasts. When man turned aside from the way, and did those things that were contrary to his own well-being, sickness, pain, and death came upon him.

All the sickness in the world is a result of sin. There would be no sickness to-day if man had not transgressed God's commands. And even now, although there is so much sickness everywhere, yet the man who will obey God's laws, those that have to do with spiritual, as well as those that have to do with physical things, will be able to live above many of the diseases that afflict men. Though man has sinned, God nevertheless says to those who serve Him, "Know ye not that ye are the temple of God, and that the Spirit of God dwelleth in you?" We should care for our bodies and keep them clean and robust, for God says, "If any man defile the temple of

God (that is, the body) him will God destroy; for the temple of God is holy; which temple ye are.

That which evidences above all things else God's love for man is the sending of His only begotten Son, Jesus Christ, to be man's Saviour. Through Jesus, God has provided a way whereby all who believe in Jesus may obtain forgiveness of sin and may live here on earth in a way that is pleasing to God; and best of all, they may obtain eternal life. To say that the one who believes in Jesus obtains eternal life, does not mean that he will not die; but it means that although he dies, God will raise him to life again and cause him to live in peace and happiness forever.

The Son of God when on earth went about doing good. He taught the people the way of salvation, and ministered to their bodily needs by healing the sick and the maimed and the blind. Best of all He told men of a country where pain and sorrow and sickness cannot enter, where there are no blind, or deaf, or maimed; for all who enter there receive perfect bodies; a country where the inhabitants have no fear of death; for there is no death there.

Jesus has promised that He will soon return to the earth. His coming is near, because the signs that foretell His coming have nearly all been fulfilled. Such signs as the increase of disease in the world, great earthquakes and famines, distress among nations, and especially the great world war, are all signs that show that the end of this world and the second coming of Jesus are very near.

When Jesus returns to the earth, He returns to raise to life all who have died believing in him. This, together with all the living who trust and serve Him He will take out of this sin-stricken, sorrow-filled world to the place He has prepared for the righteous. At his return, all those who have rejected Him and spurned His mercy, will perish.

In view of all this, it is to be earnestly hoped that the readers of this volume will not only find out how to cure the diseases of the body, and how to keep the body robust, but that they will also obtain that knowledge of the way to salvation which will cure the soul's disease (sin), and thus obtain a place and life eternal in that heavenly country where pain and sickness and death are unknown.

CHAPTER 50

A List of Prescriptions Mentioned in Previous Chapters of This Book

No. 1. Boric Acid Solution. Secure a clean bottle that will hold 8 ounces or more of water (a half glassful or more). Put in the bottle a large spoonful of boric acid crystals. Fill the bottle with water that has been boiled. Leave the bottle to stand for a few hours before using. The boric acid will not all dissolve. When pouring from the bottle use care not to pour out any of the crystals. As the solution is used, more water may be added until all of the crystals disappear.

No. 2. Tincture of Iodine already prepared can be secured at any chemist shop.

No. 3. Argyrol solution can be secured at a chemist shop. The 10 per cent solution should be used.

No. 4. Boracic Acid Powder, from any chemist

For Dandruff and Falling Hair

No. 5. Mix Sulphur 2 drams (2 small teaspoonfuls) and Vaseline 1 ounce (2 large spoonfuls).

For Baldness

No. 6. Mix Resorcin 20 grains, and Alcohol 5 drams, and water 5 drams.

For Checking Diarrhoea

| | | |
|------------|-------------------------|-----------|
| No. 7. Mix | { Subnitrate of Bismuth | 2 drams |
| | { Salol | 1 dram |
| | { Chalk mixture | 1½ ounces |

Give a teaspoonful every 3 or 4 hours.

Dose for a Child

| | | |
|-----|-------------------------|-----------|
| Mix | { Subnitrate of Bismuth | 36 grains |
| | { Salol | 12 " |
| | { Chalk mixture | 4 drams |

Give a teaspoonful every 3 or 4 hours.

No. 8. Burnt Alum is made by putting a piece of alum in a spoon and holding it over the fire until the alum melts and becomes white and dry.

For a Mouth Wash and Gargle

| | | |
|--------------|---------------------------------|-----------|
| No. 9 Mix | { Carbolic Acid | 1 dram |
| | { Glycerine | 1 ounce |
| | { Saturated Boric Acid solution | 10 ounces |

Another prescription that is good is made as follows ;

| | | |
|-----|----------------------|-----------|
| Mix | { Boric Acid | 1 dram |
| | { Potassium Chlorate | 2½ drams |
| | { Peppermint water | 12 ounces |

Another good mouth wash and gargle is made by adding 1 small spoonful of salt, and 1 small spoonful of baking soda to a pint (a glassful) of water.

No. 10.

| | | |
|-----|-----------------|----------|
| Mix | { Carbolic Acid | 1½ drams |
| | { Alcohol | 2 ounces |
| | { Water | 5 |

This also makes a good mouth wash and gargle.

Ointment for Pustules, etc.

| | | |
|-------------|-----------------|-----------|
| No. 11. Mix | { Vaseline | 1 ounce |
| | { Carbolic Acid | 10 grains |

For Heartburn or Belching of Sour Fluids

No. 12. Soda Bicarbonate (baking soda) may be taken in doses of a small spoonful at a time.

Ointment for Hemorrhoids

No. 13. This prescription is made by mixing :

| | | |
|---|---------------------|----------|
| { | Lcad Acetate | 2 parts |
| | Tannic Acid | 1 part |
| | Belladonna Ointment | 15 parts |

Tooth Powder

| | | |
|------------|-----------------------|-----------|
| No. 14 Mix | { Powdered Chalk | ½ pound |
| | { „ Castile Soap | 1½ ounces |
| | { Sugar | 1 ounce |
| | { Powdered Orris Root | 1 „ |

No. 15. For Hookworm Prescriptions; see page 185.

For Use in an Inhaler :

| | | | |
|-----------|---|-----------------------|--|
| No. 16. | { | Menthol | |
| Mix equal | | Camphor | |
| Parts of | | Eucalyptus Oil | |
| | | Oleum Pini Silvertris | |

An Inexpensive Inhaler

No. 17. The method of using this medicine is as follows : Secure a piece of bamboo or other hollow wood the thickness of your finger and about 4 inches long. Close up one end by a piece of cork or wood that has a small opening in it. Wet a piece of cloth or cotton in this medicine and put it inside the piece of bamboo. Then put the open end of the bamboo in one of the openings of the nose and inhale (breathe) the medicine. Inhale (breathe) the medicine several times daily. When not inhaling the medicine, a small cork should be inserted in the open end of the bamboo tube to prevent the medicine from evaporating.

For Dry Coughs

| | | | |
|-------------|---|----------------------|-----------|
| No. 18. Mix | { | Codein Sulphate | 3 grains |
| | | Ammonium Chloride | 75 " |
| | | Syrup of Citric Acid | 1 ounces |
| | | Water | 1½ ounces |

An adult may take a small spoonful in water every three or four hours until improvement is noticed. A child may take one third of a teaspoonful.

No. 19. Mix 4 grains of sulphate of iron and 3 grains of ovarin. Take in a capsule three times a day. See page 220.

For Chlorosis

No. 20. Blaud's pills. Each pill contains 2 grains of sulphate of iron.

No. 21. Blue ointment can be secured already prepared in the chemist shops.

No. 23. First make a saturated solution of potassium permanganate by adding a large spoonful of crystals to a glassful of water. It should be frequently stirred and must be allowed to stand for several hours before using. This strong solution must not be used, but 2 small spoonfuls of it should be added to two glassfuls of water for use as a vaginal douche or to wash sores.

No. 23. Zinc ointment can be secured from the chemist shop.

No. 24. To make brown flour gruel put wheat flour in a clean cooking vessel and hold over the fire, stirring constantly until it is brown. Then use some of this browned flour to make a gruel. A little salt should be added to it.

No. 25. Rice water.—Put a couple of large spoonfuls of rice in a couple of glassfuls of water and boil for 3 or 4 hours. Add a little water from time to time so that there will be almost 2 glassfuls of the rice water when it is done.

No. 26. Lime water.—The method of preparing lime water is as follows: Take a lump of unslaked lime about half the size of a small hen's egg; place it in a pint of water. This will make a milky looking mixture which will settle in a short time. When it settles pour off the clear liquid on the lime. Add another pint of water, stir with the lime, allow it to stand until the water is clean, then pour off this water. This washes out the impurities. After this take this lime, divide it into four portions and put each portion in a pint bottle, fill the bottles with boiled water—cork tightly. The clear fluid in the bottles is lime water.

No. 27. Egg Water. See page 256.

No. 28. Starch Enema. See page 138.

No. 29. Egg-Nog. See page 256.

No. 30. Jellyed Eggs (Coddled Eggs). See page 256.

No. 31. Steam Inhalation Method:—Take any vessel in which water can be boiled and place over a fire. Make a funnel-like tube to connect the same with the face (an ordinary towel or paper will serve the purpose). Place one end over the vessel in which is the boiling water and the other over the mouth, and inhale the steam. Oil of eucalyptus should be added to the water. See page 142.

No. 32. For Medicated Enemas. Page 153.

No. 33. Tannic Acid Enema for Cholera. Page 168.

No. 34. Ointment for Ringworms. Page 229.

No. 35. Ointment for Threadworms. Page 186.



APPENDIX

Diseases of Metabolism

By H. C. Menkel, M. D

Under diseases of metabolism are classed the various disorders of nutrition in which one or more of the food elements (starch, sugar, fats, proteins, mineral salts and vitamins) are not being fully utilized or oxidized by the body, resulting in unbalanced nutrition which is manifested either as undernourishment or as imperfect elimination, with varying symptoms according to the particular nutritional or waste elements involved. The above includes such diseases as diabetes mellitus, rheumatism, gout, obesity, neurasthenia, acidosis, etc.

Rheumatism and Mineral Starvation

The more recently developed knowledge of nutrition has cleared some of the haze of uncertainty surrounding the underlying cause of rheumatism and kindred disorders.

Within the human organism two processes are taking place, constructive and destructive. "Man begins to die as soon as he is born." This refers to the process of tissue disintegration resulting from normal functional activities. The end result of this process is an acid ash, which tends to produce an acid degeneration of the living tissues.

Acid means death to the cell organisms. The body tissues must function in an alkaline environment. Therefore the constructive process of nutrition works with alkaline materials and results in building up a strong alkaline reserve within the organic cell structures and the blood.

Nature has provided well for her alkaline needs in the form of sixteen alkaline mineral salts to be found abundantly

in the food stuffs coming from the vegetable kingdom. These organic mineral salts as found in vegetables and fruits are in the form of colloids of gelatinous consistency and are therefore exactly suited to supply our alkaline requirements. /

In health, the balance between acid and alkaline is readily maintained and all goes well; the individual feeling at ease, full of ambition and energy.

If the alkalinity of the tissues is reduced ever so little by the absence from our diet of one or more of these sixteen alkaline mineral salts, the result is a condition called by medical men "acidosis," meaning a deficiency of alkaline reserve with varying symptoms differing according to which of these salts are missing.

These inorganic food salts like potassium, soda, lime, magnesia, silica, phosphorus, chlorine, iron and sulphur become united in definite proportion with organic matter to form the various cells of the living body.

Our resistance or susceptibility to ill health, such as come under the head of rheumatism, arthritis, neuritis and many other like conditions, is determined by the nutritional balance of our individual cells. Particularly is this balance influenced by the presence or absence of the full complement of the sixteen alkaline salts and the three classes of vitamins, all of which are prepared for our needs in the vegetable kingdom.

We are finding that a considerable list of diseases with varying names according to the most prominent symptoms, may all be classed under the head of "mineral starvation." The mineral reserve of the body has been depleted and as a result functional order has become impossible.

The causes for this "demineralization" of the tissues are not difficult to find. The first cause is failure to provide freely of the alkaline-supplying food factors as found in vegetables, fruits and cereals. Much more of green vegetables and fresh ripe fruits should be used. The vegetables must be prepared so as not to throw away any water in which they have been cooked, and some fresh, raw green stuff, as salad, eaten daily. Cereals as wheat and rice should retain their mineral element which is lost by using white flour and

polished rice. These are largely demineralized and are therefore deficiency foods.

Excess of bread stuffs favours acidity and should therefore be used sparingly by the rheumatically inclined. Meats are the chief acid producers and are "alkaline robbers" using up the essential reserve in the body's effort to neutralize their dangerous acid products. Experience has taught the necessity of limiting flesh foods to rheumatic patients. We now understand why this is necessary.

Constipation and absorption of acid intestinal content is a third factor in demineralization. This must be corrected.

It will be evident from the above that in rheumatism the chief factors are either an excessive loss of alkaline mineral salts or a failure to supply them. Therefore:

Proscribe all foods which tend to produce acids.

Increase alkaline containing foods.

Prevent intestinal stasis (constipation).

Drink freely of water to help eliminate excessive wastes.

Insure fresh air at all times to support oxidation.

In addition to the above dietary measures, it is often necessary for a time to take a combination of inorganic mineral salts to help in conserving and building up the mineral reserve of the tissues.

Mineral metabolism or mineral digestion, is largely under the control of a group of glandular structures located in different parts of the body. These include the parathyroids, the spleen, the thyroid and probably also the sex glands, as these have much to do with general tone. The functional lagging of such glands is an additional cause of mineral starvation. Whenever these glands are working below par, the effect is the same as an insufficient supply of alkaline elements; for minerals are then allowed to pass out of the system without being appropriated. Thus mineral or alkaline shortage is produced.

In such cases it is necessary to use extracts of the involved glands in tablet form, made from animal glandular structures and these should be taken daily for several months. The writer has seen very definite benefit derived therefrom.

As these glandular mineral workers are wonderfully influenced by the ultra-violet rays of the sun, it is a very help-

ful practice to expose the body as a whole or in parts to the direct sun rays; beginning with exposure of only a few minutes and gradually increasing the time. Persons with a fair skin should not expose the head or spine.

Daily hot baths and hot fomentations to the painful parts are very effective home measures. Those who can afford to avail themselves of special treatment should have a course at one of the Sanitariums equipped for such work. Various forms of radiant energy and certain types of electrical currents are proving almost specifics.

Diabetes

Diabetes is a disorder of nutrition in which the body loses the ability to utilize carbohydrates, *i.e.* sugars and starches contained in the daily food intake. As a result the blood and tissues become surcharged with undigested sugar.

This abnormal presence of unused and unusable sugar produces a state of depleted alkalinity of the tissues and blood. This gradually borders on acidity ushering in the grave and fatal stages of diabetes. Nature endeavours to relieve this abnormality by passing quantities of sugar through the kidneys in the urine. It is this sugar in the urine which constitutes the most familiar symptom of diabetes.

Recent observations have shown that normally there is present in the body tissues a complex chemical substance making possible, by its chemical action, the conversion of sugar and starch into body heat, muscle, and nerve energy.

This chemical sugar digesting substance is largely produced and doled out to the blood, by that long glandular organ lying behind the stomach, called the pancreas.

Diabetes is therefore regarded as an aggravated and specialized form of indigestion, due to failure of the pancreas and of its chemical contribution to the bodily functions.

In 1922, Doctors Banting and Best of the Toronto University announced that they had succeeded in isolating from the pancreas this sugar digesting chemical which they named Insulin. They also announced that this Insulin substance could be injected hypodermically into the blood stream of a diabetic patient with the result that both blood and urine

became free of sugar. It was necessary to make from one to three such injections daily to keep the patient free of sugar and the consequences of its presence. This effect is maintained as long as the injections are continued. When the injections are discontinued the evidences of excess sugar reappear. Desiccated pancreatic preparations are now used with success.

As diabetes is a nutritional disorder, it is evident that dietary regulation is an important factor in reestablishing a normal nutritional balance. In selecting a plan of diet it must be remembered that the diabetic individual has lost part of his digestive power for starches and sugars and can not utilize the normal amount of these foods.

Should this person now be fed the same quantity of food as when in health, not only would part of the food be lost through the kidneys, but it no longer acts or serves as food. On the contrary it actually becomes a poison to him, setting up the train of symptoms peculiar to diabetes.

Dietary Plan

The following is in general the dietary plan which proves most effective. This will require some modifying according to individual conditions found in each patient.

The objects aimed at in treatment are first, to reduce and prevent acid accumulation, and, second, to find the patient's carbohydrate digestive powers, and then to keep the food intake safely within this limit and at the same time work to improve this deficient digestive function.

For three days the patient is given exclusively green leafy vegetables, boiled, cooked and raw. Only water is allowed in addition. If at the end of three days the urine is not yet free of sugar, then the green vegetable days are continued for a further period, until urine is free of all sugar.

Now add to this green vegetable diet, one form of carbohydrate food, such as either rice, potatoes or oatmeal. Begin with only one tablespoonful on the first carbohydrate day. This food is then gradually increased day by day and accurately measured each time.

The urine must be tested daily for sugar. When this begins to appear as the food is being increased, it indicates that the patient's limit for carbohydrate food has been reached.

The quantity of rice or potatoes should then be reduced by one third of what was given when sugar appeared, and the patient must content himself within this limit for a week or longer before the carbohydrates are again increased. Green leafy vegetables are used at liberty. This constitutes the bulk and basis of the diet plan. ✓

After remaining sugar-free for a time a gradual increase in starchy foods may again be attempted till sugar reappears, when the same plan of reduction by one third is followed.

In addition to the above mentioned carbohydrate foods, the patient may be given eggs and cheese, skimmed milk, butter sparingly, olive oil, gluten meal or gluten bread, and legumes and nuts. The last two should be added with caution. No sweet and non-starchy fruits are permissible. Meat foods, are not favoured because of their acid producing tendency.

Alcohol and tobacco have an unfavourable effect on nutrition and therefore work against the desired results. A fast for one day in each week has a very beneficial effect on the chronic diabetic. Maintain regular bowel movement.

By continued administration for a year or longer of desiccated pancreatic preparations, together with the diet as outlined above, the patient's starch digesting requirements are taken care of, while at the same time his own pancreatic function is revived, if it is still capable of responding. Some advanced cases need to continue this substitute treatment for the remainder of their life, which is thereby made comfortable and is prolonged.

Sprue

Sprue begins as diarrhoea with large, light yellow coloured, frothy stools. Usually several movements early in the morning. The mouth is tender with sores on the inside of the cheeks and the tongue. There is digestive disturbance and progressive loss of weight. Until very recently this condition was treated as an intestinal infection. It is now thought to be a nutritional disorder in which the power to utilize the lime content of food has been lost.

The lime workers of the body have gone on strike, and as a result there is developed a lime famine within the body.

These body lime workers consist of a group of glandular structures including the spleen, liver and parathyroid glands.

Since the development of this theory, sprue cases are treated more often with remarkable success.

The treatment consists of putting the patient to bed for one week to a fortnight in the average case; in restricting diet to milk only during this period; the patient is then given ten grains of Calcium Lactate three times daily, to make certain of an adequate supply of lime.

Tablets containing desiccated substance of spleen, liver and parathyroid in suitable dosage are now administered three times daily. These glandular substances supply the lack of lime workers, and the result in most cases is a remarkably speedy recovery of nutritional balance.

After one week or longer on milk only, the diet is gradually increased by additional milk foods and green vegetables. By the end of six weeks mild sprue cases are back on full diet and feeling quite normal again.

Many other chronic ulcerative conditions not classed as sprue, respond to the same plan of treatment. This constitutes one of the most pleasing developments in medicine during recent years.

Kala Azar

By A. E. Clark, M. D.

Kala Azar is a disease caused by infection with the Leishman-Donovani parasite, and is characterized in typical cases by irregular fever, progressive loss of weight and strength, enlargement of the spleen, and by changes in the composition of the blood.

Confusion with Malaria

It is most commonly confused with malaria, and is often diagnosed as such. The two diseases resemble each other in some respects, at times quite closely: so mistakes in diagnosis are not always easy to avoid. Both diseases are characterized usually by an enlargement of the spleen; both show an anæmia of varying intensity, and both diseases may occur in the same patient. On the other hand, they are caus-

ed by entirely different parasites; and although we know the means of transmission of malaria to man, we do not know how the parasite of kala azar enters the human body. It has been claimed by some that the parasite gains entrance to the body by means of the bite of the bed-bug; but most authorities now reject this as being unproved. At the present time it is believed that it enters the body by means of some blood-sucking insect, possibly a mosquito or sandfly.

Signs and Symptoms

The most characteristic clinical sign of kala azar, and the one which the patient first notices, is the enlargement of the spleen. This is a gradual enlargement, usually being felt at the end of the first month below the margin of the ribs; at the end of the third month midway between the margin of the ribs and the navel, and at the sixth month it has reached the navel. In severe cases it may enlarge more rapidly than this, and reach the navel by the third month, although what has been given above describes the usual case. The spleen is not tender as a rule, but certain cases show some tenderness. The spleen may not enlarge in a downward direction, but backward, in which case it may not be felt by the patient; examination by a physician will usually reveal it.

Combined with the enlargement of the spleen is the loss of weight and strength, which manifests itself to the patient soon after the disease becomes established. It is also a progressive loss, and usually keeps pace with the progress of the disease.

Fever

The fever of kala azar is not characteristic, in the sense that the fever of malaria or typhoid is characteristic. In some cases it may resemble the fever of malaria; in other cases it may be like that of typhoid, while in still others it will not resemble either of the fevers of these diseases. The only feature of the fever which can be said to be of value in the diagnosis of the disease is the tendency for it to show a double rise within twenty-four hours. If the temperature is taken every two hours, it will be observed that it rises twice within the twenty-four hours; and this has been stated to be quite characteristic of kala azar.

Changes in the Blood

As for the changes in the composition of the blood, they are quite marked in typical cases. First, there is a reduction in the number of the white blood corpuscles or leucocytes. In the normal individual the number of white blood corpuscles is about 7,500 in a certain measured quantity of blood, whereas in kala azar it becomes greatly reduced, in the average case of moderate intensity being about 4,000 or even less. Combined with this reduction in the white blood corpuscles, there is an anæmia or reduction in the number of red blood corpuscles, or in the colouring matter of the blood. This reduction in the number of the red blood corpuscles is not as marked as in malaria, but exceptions occur. In other words, the average patient with chronic malaria is rather more pale in colour than is the average patient with kala azar.

There are other less common but important signs and symptoms which are of value when taken in conjunction with these chief signs. It might be well to briefly mention these. There is a great tendency for kala azar patients to bleed from the gums, nose, and other mucous membranes, due to the decreased ability of the blood to clot, and also to the anæmia which exists. Another feature which is often seen in such patients is the dry, lustreless, brittle condition of the hair. The hair has apparently lost its oil, and with this loss it loses the glossiness which is usually seen. Kala azar patients frequently develop a chronic aggravated cough such as is often associated with bronchitis. A darkening of the skin of the forehead and temple occurs frequently in this disease.

Diagnosis

The diagnosis of the disease is made upon the finding of the above chief symptoms, with a history of irregular fever, progressive loss of weight and strength, and with this peculiar blood changes previously mentioned, together with the examination of the blood by suitable methods, which generally reveals the parasite. A test of the blood serum is also made, which seems to be of great value in diagnosis. This is known as the aldehyd test. In some patients the parasite cannot be found by the usual methods of blood examination; in

such cases a spleen puncture usually clears up the diagnosis. Spleen puncture is the most reliable means of diagnosis of kala azar; but owing to certain dangers it is best left until the other methods fail to reveal the parasite.

Prognosis

The prognosis or chance of recovery from the disease in untreated cases is bad; the disease tends to go on from bad to worse until the patient dies from it, or, as is probably more often the case, he develops some other disease and succumbs to it, owing to the lowered vitality of the system. In treated cases the outlook is good in most patients. Cure can be said to be almost in proportion to the time when treatment was begun; if a patient takes treatment in the early days of the disease, he stands a better chance of being cured than does the patient who comes for treatment when the disease has firmly established itself.

Treatment

Once the diagnosis has been made, treatment must be begun. This consists in the injection into a vein, usually one of the veins at the bend of the elbow, of a solution of tartar emetic or some other preparation of antimony. The treatment must be given by a physician or by one specially trained in that line of work, and for this reason it is unnecessary to mention details of treatment, dosage, etc., etc.

The cheaper preparations of antimony require longer course of treatment than the more expensive compounds. For those who can afford to pay for the more expensive preparations, it is advised that treatment be taken with them.

Complications

Kala azar patients, owing to the lowering of the body resistance resulting from the disease, are very liable to contract other diseases such as typhoid, dysentery, tuberculosis, and pneumonia. One of the common complications of kala azar is broncho-pneumonia, which claims a large death rate. Other complications which arise are diarrhoea or dysentery, cancrum oris, (gangrene of the mouth) and hemorrhages from the gums, nose, and other mucous membranes.

For a more detailed work on kala azar, the reader is referred to the "Handbook of Kala Azar," by Napier and Muir, published by the Oxford University Press, May, 1923.

NOTE: Rabies—Lt.-Col. F. D. W. Greig, C. I. E., M. D., D. Sc., I. M. S., Offg. Director, Pasteur Institute of India, Kasauli, makes the following suggestions:

Treatment of the Wound

As soon as possible after the bite, the wound should be well washed, dried and then thoroughly cauterized. The best agent to employ is pure carbolic acid because it penetrates well, quickly destroys the virus, and being a local anæsthetic, only causes a temporary smarting of the wound. If pure carbolic acid cannot be obtained, permanganate of potash,—crystals or a saturated solution,—pure nitric acid, silver nitrate, etc., will do; but they are not as efficient as pure carbolic acid.

It is necessary here to describe what is meant by thorough cauterization. Some persons have an idea that to efficiently cauterize a couple of penetrating tooth wounds, it is necessary to destroy about 5 or 6 square inches of the skin and quite overlook the necessity of seeing that the caustic reaches to the bottom of the wound. To thoroughly cauterize a bite each separate tooth mark must be dealt with in turn, and care taken that the caustic actually comes into contact with the sides, and penetrates to the bottom of the wound. Sometimes it is necessary to open the wound to allow the caustic free access to every part in which the virus may have lodged. Where there are definite teeth marks a probe should always be used. Care should, however, be taken that the skin is not too extensively destroyed, as this delays healing. All that is necessary is to see that the caustic has destroyed the tissues which may have actually come into contact with the virus on the infected tooth.

We believe that if bitten persons were seen early enough, i. e., within an hour of the bite, and if the situation of the bite, e. g., calf or forearm, rendered total excision of the infected area possible, the best treatment that could be adopted would be to excise (cut out) the whole wound, thereby getting rid of all lodged virus. Neither cauterization nor excision, however, can be absolutely depended on to remove all chances of infection; yet, at the same time, when properly carried out, the bulk of the virus is destroyed, thereby diminishing the dose of poison inoculated and giving the Pasteurian treatment a better chance of destroying the remainder of the virus left in the wounds.

Pasteurian Treatment for the Prevention of Hydrophobia

The wound having been efficiently cauterized, the next point for decision is—should the person bitten be sent to a Pasteur Institute or not? When a qualified medical officer is not available, or in any case of difficulty or doubt, a detailed telegram should be sent to a Pasteur Institute stating symptoms, the circumstances of the infection, etc., when an opinion can often be given. In cases where treatment is not necessary, this may save patients from the expense and trouble of a long journey. The code words for telegrams are—

1. Pasteur Institute of India, Kasauli.....Pasteur
 2. Pasteur Institute of Southern India, Coonoor (Madras).....Lyssa
 3. Pasteur Institute, Rangoon (Burma).....Virus
 4. King Edward VII Memorial Pasteur Institute, Shillong (Assam).....Rabies
- “*Rabies and Anti-Rabic Treatment in India*,” p. p. 9-11.

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